The Psychology of Public Speaking

WALTER DILL SCOTT

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THE PSYCHOLOGY OF PUBLIC SPEAKING

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THE AUTHOR RESPECTFULLY DEDICATES THIS VOLUME TO
THE ARTIST

Professor Robert McLean Cumnock

WHO AWAKENED IN HIM AN ABIDING INTEREST
IN PUBLIC SPEAKING, AND TO
THE SCIENTIST

Professor George A. Coe

WHO INSPIRED IN HIM A LOVE
FOR PSYCHOLOGY

Introduction.

The term psychology has a peculiarly formidable appearance. It is supposed to denote something mysterious and ominous and to be closely related to the "black art" or something of that sort. It is a study in character to note the way different people are affected by reference to the subject.

The author of this series of articles spent his youth in a rural community, and attended high school and a normal school in a neighboring city. The inhabitants of the rural district knew that he intended to teach school, but had not kept posted as to what had become of him after he had left the normal school. Some ten years later he returned to his boyhood home and renewed old acquaintances. By this time he had completed his college and university work, received his degree abroad and settled down as an ordinary professor of psychology in an American university.

Words can but feebly express the replies which were received from the old acquaintances when they were informed that he was a professor of psychology. His former Sunday School teacher was a dear old lady who had not lost her interest in him, and when he told her that he was teaching psychology, she threw up her hand in horror and exclaimed, "What under heaven is that?" The author thought that the emphasis was on the *under* heaven, thus indicating that it could have nothing to do with heaven, and hence not

worthy the consideration of an earnest young man. When the word "psychology" was uttered in answer to the question, "What yer teachin' now?" the old farmer exclaimed, "What on earth is that?" This was a little more encouragement, for it at least seemed to imply that the farmer assumed it to occupy a place on this planet. But when a more profane youth substituted for the two words, "on earth," an expression which is excluded from polite society, it became evident that the farmer had no intentions of praising. Another former acquaintance who had read articles on witchery, telepathy, astrology and kindred subjects, believed that he knew what psychology was. He showed what he thought of the waywardness of his former boy acquaintance by asking him, "What yer teachin' that tomfoolery fer?"

The common prejudice against psychology is well founded and easily understood. The science was founded by Aristotle, who defined it as the science of the soul. His treatise was too abstract and difficult for the comprehension of an ordinary man. At a later time all sorts of teachings were presented in the name of psychology. All abnormal actions of the mind and many assumed actions were grouped under the name of psychology. This treatment of the subject held sway so long that even to the present day the impression is abroad that it has to do mainly with telepathy, "unconscious cerebration," hypnotism, double personalities, and subjects of a kindred character. It is but recently that psychology has outgrown the form impressed upon it by Aristotle, or else the form that it sometimes took

during former centuries, which related it to all the absurdities of the dark ages.

It frequently happens that the best place for an introduction to a book or series of articles is at the end. In the present chapter it will not be possible to indicate the nature of the series which is to follow, but it may be worth while to give certain suggestions as to the nature and value of the psychology of public speaking.

In the first place, it should be remarked that psychology, as studied to-day, is one of the most practical and fascinating of all the sciences. It is the study of the mental processes as we observe them continually in ourselves and in those about us. The methods of research have been improved and the store of knowledge enlarged. The fields of investigation have been widening and the applications which have been made of recent years have been most encouraging. That psychology is beneficial, if not essential, for all teachers is now assumed by our best authorities. Much has been done in the last few years to advance the study of psychology among business men. Its application to the science of medicine is becoming more evident from year to year. It is coming to be realized that the study of one's own mind and that of others is one of the most pleasing and profitable studies for all persons.

The readers of this work are an elect group of persons whose function is that of practical psychologists. They are all diligent students of psychology, and their success has been due in part to their great ability in this line. They understand the minds of their audiences, and know how to

influence them. The function of this work is then not to present something entirely new, but to help to a systematic study where only special and limited studies have been made.

Such a treatise as this is not at all presumptuous, for it is an attempt to present in a systematic form the great truths on the subject that have been discovered by the united effort of thousands, and by the assistance of methods of research which have been employed in this field. From the days of Aristotle and Quintilian there is hardly a psychologist or an orator that has not had some new truth to add to the store from which we are privileged to draw.

The first psychological laboratory was founded in Leipzig in 1880, where but four students received instruction during that year. The psychology as taught to-day is based on the psychological laboratory. Ten years ago the majority of American colleges and universities had no such laboratories; hence it may be fairly assumed that the majority of the readers of this work have had no opportunity for instruction in the so-called "New Psychology." It shall therefore not be assumed in this our undertaking that any of the readers are familiar with the subject as taught at the present time, but an attempt will be made to present each topic fully, and next its true significance and value to the public speaker. In certain cases the discussion will be mainly theory, while in other cases it will be largely application. For instance, the next two chapters will be devoted to the presentation of a psychological fact discovered by Sir Francis Galton in 1880, and since verified by other

psychologists. The presentation will be mainly theoretical, but it is at the same time intensely practical. He discovered certain personal differences in the method of thinking, and his discovered differences are of so much importance to public speakers, both in their own thinking and in influencing other persons, that this subject is placed at the first of the series. The ninth chapter will present a subject that could not have been discovered until the introduction of the phonograph and other accurate recording instruments had made it possible to undertake a scientific study of the method of delivery employed by some of our best contemporaneous orators.

The author of this work does not pose as a great speaker, but as one who has an abiding interest in public speaking, and who has learned more by his failures than by his successes. Whatever of psychology is of greatest value to the public speaker will be regarded as appropriate to the series. There is, to the author's knowledge, no published work under this title, and indeed no psychology published for the special use of public speakers. This fact will necessitate a re-writing of many established facts of psychology and at the same time will call for new applications and fuller presentations of many of the truths which in other forms would have no special value to the public speaker.

The public speaker's whole task is to influence the human mind. Psychology is a systematic study of this same mind. It is absurd to suppose that psychology could have nothing of benefit for the public speaker. The connection between psychology and public speaking is so direct that

psychology as a science will be extended by a careful study of the action of mind as manifested in public speeches, in their delivery and in their influence upon audiences. At the same time every public speaker should be benefited by systematizing his knowledge upon the subject of the human mind, for his success depends upon his ability to deal with this same human mind.

Mental Imagery.

CHAPTER I.

Mental Imagery.

PERCEPTION AND MENTAL IMAGERY COMPARED.

Before me as I write is a poster, advertising the Chicago Horse Show. Turning my eyes to it, I perceive it in all its details. The horses, carriages, people and decorations are all equally clear and distinct to my gaze.

I close my eyes and try to imagine the poster, and it stands out before me much as it did when I was looking at it. The bold patches of color which represent trees and shrubbery, the lines of black and white that represent the fence, the black, red and yellow tallyhoes, and the brilliant costumes are all present in my reproduction of the poster as I sit with closed eyes and try to imagine just how it looks. My *visual image* of the poster is quite similar to my percept of it.

There are children playing on a neighboring lawn. They are playing that they are fire-engines and are trying to reproduce all the sounds connected with this most interesting object. I can hear them tramp heavily up the sidewalk, screeching in imitation of the bell and calling excitedly just as they had heard the firemen do in a recent fire. Every sound is perceived by me as I stop to listen to them.

As the clatter in the adjoining lawn is for a moment silent, I try to live over again an experience of a former hour spent in ascending a precipitous cliff in which loose

rock was moved from its resting place and went roaring to the bottom of the canyon. I hear in imagination the rock as it plunges from one ledge to another. With each bound the roar becomes more and more terrifying, the echoes re-enforce one another till the whole valley is filled with a deafening roar. As the rock strikes the bottom, there is a terrific crash, followed by a gradual dying out of the echoes, only to be followed by a death-like stillness. My *auditory imagery* of these sounds is so vivid that I feel once more that I am making the difficult ascent and hearing the noises of the canyon. Indeed, the shouts of the children which reach my ear are hardly more real to me than the roar of the canyon which I hear again in imagination.

I press my hand against my table and push it. The table, being heavy, requires a great force to start it. I observe the feeling in my muscles and joints as I push to see how it feels. I thus get a perception of muscular effort. I observe the feeling of strain in my muscles and joints as well as the rushing of blood to my head and the strain across my chest.

I call up a former experience in which I was playing football and in which the scrimmage was unusually trying. My muscles were weakened by long, continuous effort, and no time for rest was to be thought of. I feel in imagination the straining of the muscles as I attempted to push against the line. I imagine the terrible struggle, the twisting, straining and writhing of every muscle, tendon and joint. As I imagine it I find the state is re-established and I am unconsciously leaning towards the goal as if the experience

were a present one. My *motor imagery* of the foot-ball game is almost as distinct as the motor perception of moving the table.

I feel my collar pressing against my neck—I have a perception of it. In my imagination I feel a fly slowly crawling up the bridge of my nose—I have a *tactual image* of it—and the image is so strong that I have to stop to rub my nose.

I ate a peach for breakfast this morning and enjoyed the taste of it—my perception of the taste was pleasing. It is now almost noon, and, as I think of how it tasted, my mouth waters—I have a vivid *gustatory image* of the peach.

As I hold the rose to my nose I get a perception of it. As I think of how the gas factory smelt yesterday when I passed it, I have an *olfactory image* of the gas.

As I press the point of a pencil sharply against my hand I perceive the pain. As I think how it felt when I stepped on a rusty nail I have a mental image of the pain.

It is the function of our imagination to supply us with mental images, and from all that has been said, it is quite evident that we may have mental images of those things which we have previously perceived.

IMAGINATION, PRODUCTIVE AND REPRODUCTIVE.

Such mental images are the results of what is known as either *productive* or as *reproductive* imagination. The illustrations cited above are all of the reproductive type. The living over again or the reproducing of an entire former experience in imagination is known as reproductive imagination. All imagination is in a sense reproductive, for no

one is able to imagine anything all the parts of which have not been present to his senses. It is a common belief that the imagination is free and untrammeled in its flights, yet it is one of the most dependent of our faculties. All the elements of the most bizarre fancy have been experienced before by the imaginer.

It is quite possible for us to work over and reunite in different proportions and settings the elements of our former experiences and such a process is known as *productive* imagination. In a sense all imagination is productive, for, no matter how scruplously exact I may be, when I live over again in imagination a former experience I am sure to change it in some details. One detail is left out and another is exaggerated; so that in a sense the experience is unique and might be called productive imagination. Hence we see that the distinction between productive and reproductive imagination is not a fixed thing. When the mental image is largely a reproduction of former experiences in their entirety and in the order in which they originally occurred, then we call the act reproductive imagination. If there is union of parts of different experiences so that the mental image is quite different from any former experience in its entirety or its connection, then we call it productive imagination.

The Greeks exercised their productive imagination when they united the head and trunk of a man to the body of a horse and so created a Centaur. The medieval Satan is an example of productive imagination, as the horns of a goat, the hoofs and tail of an ox, and the wings of a bat are all

added to the form of a man. The productive imagination is also manifest in the construction of an angel by uniting the wings of a bird to the body of a beautiful maiden. Newton joined the fall of an apple to the movement of the spheres and so arrived at the idea of universal gravitation. The work of the productive imagination is usually more subtle than these examples would indicate. Such figures of speech as similes are the result of productive imagination in which elements of one object are extracted and united with the elements of other objects or experiences. In the following quotation pleasures are thought of as transient, and this element is extracted and made use of to join pleasures with poppies and with snow flakes:

> "For pleasures are like poppies spread—
> We see the bloom, the flower has fled;
> Or like the snow-flake on the river—
> One moment white, then gone forever."

THE FUNCTION OF THE IMAGINATION.

Mental states are changed by everything that invades our experience and we are thus rendered capable of living in imagination all former experiences or any of the parts of these experiences and in any and all connections. The imagination is never richer than our experiences, yet none of us has put the things which we have experienced in all their possible new combinations because none of us has sufficient productive imagination. Nothing can be present in our imagination which was not first present in our percep-

tion; but the richness of life depends not on the number of things that we have perceived, but in the use that our imagination has made of what we have perceived. It is not so much our environment as our imagination that makes us condemn the world as cold and dreary. There is many a traveler who finds that new lands and peoples add but little to his enjoyment. All the peoples and all lands are equally stale and unprofitable to him. Luther and Milton found that prison walls, and even blindness, were no barriers to rich and productive life.

There is an impression shared by many that our senses alone give us reality and that our imaginations deal with the unreal. Such a view is based on an error. Objects are present to our senses but for a brief moment, but they may be present in imagination for days and years. Our best thinking concerning objects of sense may even be conducted after their disappearance. Our imagination is the instrument of reality. By means of it we are brought face to face with the past and by means of it we prophesy the future. In imagination the blind Beethoven hears his divine symphony, and then proceeds to put it on paper. In imagination Newton sees the universe controlled by the laws of gravitation, and then proceeds to demonstrate the fact. In imagination the sculptor sees his statue and then begins the task of carving it from the marble. The imagination is not confined to the work of the artist and the genius, but is employed in our every-day activities. I see in imagination the result of a certain line of conduct, and am led to abandon it. I construct in imagination an

ideal of life and seek to attain it. I feel in imagination the suffering of the unfortunate and am induced to espouse their cause. I cannot imagine a line of conduct without feeling impelled towards it. If I try to imagine the pronunciation of the letter "q" I find that there is a movement in my tongue preparatory to its pronunciation.

SIR FRANCIS GALTON'S INVESTIGATION.

Until about 1880 it was assumed that any normal person could form an image of anything which had ever been present to his senses. It was not known that there were great personal differences, and it was not discovered that some persons could with ease see in imagination things which had been presented to their eyes but could form no mental image of sounds, while others could form distinct images of sounds but not of sights. In 1880 Sir Francis Galton instituted an investigation which revealed the fact of astounding personal differences in ability to form images of different sorts. He also found that the number of persons who could form distinct visual images was far in excess of those who could form distinct auditory images or tactual images.

The results of this investigator have been verified by many persons, and no peculiarity in his results seems to be unique. For over ten years records have been kept of the quality of the mental imagery of every student studying psychology at Northwestern University. These papers prove conclusively that the personal differences in normal intelligent persons are so great and the consequences of

such a fact are so important that any one who has to do with the minds of people (as every reader of this treatise has) should give careful consideration to the question of personal differences in mental imagery.

For each of the ten years all students have been asked to try to imagine their breakfast table of the preceding morning, to get it before them as vividly as possible, and then give a full and vivid description of all the details. (It is recommended that at this place every reader of this chapter pause and try to hold in imagination his breakfast table of the preceding morning and then examine the image as carefully as possible.) Each student was also asked to describe his mental image of a railroad train and a football game.

The following papers are all rather exceptional, used to illustrate the extremes, but any one of them can be duplicated many times from the hundreds of papers presented by the students.

The first paper was presented by a student of rather unusual oratorical ability, and his description indicates pronounced visual imagery:

THE EXTREMES OF VISUAL IMAGERY ILLUSTRATED.

"The various dishes appear just as perfectly before me as if they were arranged about me as I write. The colors are distinct, the mats, the bread, the potatoes, and the coffee, are all in their proper light. I see such details as the fat on one side of the meat and the lean on the other. The image of my friend who sat opposite me is very distinct."

In contrast with this the following paper seems incredible:

"The word 'breakfast table' calls to my mind no visual image, and yet I know perfectly what is meant."

The next paper is so convincing that it makes us pity the poor man who can see objects only when they are actually before him.

"My effort to imagine my breakfast table results as follows: When I first close my eyes I seem to see the table before me dimly; but as soon as I turn my attention to it and undertake to examine it more clearly, it vanishes, and there is total darkness in my mind. I am unable to see any colors. It seems to make no difference whether I have my eyes open or closed. If I suddenly close my eyes after having them open for a while, I get a misty, ghost-like vision, which immediately vanishes. The whole vision is as if I were sitting at the table and there were a very dim light admitted to the room for a moment, and then total darkness came on again, this light being sufficient to enable me to see only the vague outlines of the table."

It should be borne in mind that this is an honest report of a college senior, and that his report of his breakfast table would be duplicated by a report of his image of any other object or event.

THE EXTREMES OF AUDITORY IMAGERY ILLUSTRATED.

The following paper is the report of a student who was possessed of very good auditory, but poor visual imagery:

"When I think of the breakfast table I do not seem to

have a clear visual image of it. I can see the length of it, —the three chairs, though I can't tell the color or shape of these; the white cloth and something on it, but I can't see the pattern of the cloth or any of the food. I can very plainly hear the rattle of the dishes and of the silver and above this hear the conversation, also the other noises, such as a train which passes every morning while we are at breakfast. Again in a foot-ball game I distinctly hear the noises, but do not clearly see anything or anybody. I hear the stillness when everyone is silent and then the loud cheering. Here I notice the difference of pitch and tone."

The next report is that of a student with poor auditory imagery:

"I am not able to state whether I hear the train or not. I am inclined to think that it is a noiseless one. It is hard for me to conceive of the sound of a bell, for instance. I can see the bell move to and fro, and for an instant seem to hear the ding dong, but it is gone before I can identify it. When I try to conceive of shouts I am like one groping in the dark. I cannot possibly retain the conception of a sound for any length of time."

IMAGERY OF MOVEMENT.

Although the visual and auditory images are the most vivid with most persons, there are those whose prevailing imagery is of movement—the so-called motor imagery. The following from the report of a student who thinks in terms of movement will make this point clear:

"When the word 'railroad train' was pronounced, I saw

the train very plainly just stopping in front of the depot. I saw the people getting on the train; these people were very indistinct. It is their motions rather than the people themselves which I see. I can feel myself getting on the train, finding a seat and sitting down. I cannot hear the noise of the train, but can hear rather indistinctly the conductor calling the stations. I believe my mental imagery is more *motile* (of movements) than anything else. Although I can see some things quite plainly, I seem to feel the movements most distinctly."

Persons whose mental imagery differs from our own seem to do some things very queerly. The following is an extract of a report from a student who thought largely in terms of movement, and some of his methods of learning things, and the parts of his childhood experiences which he remembered, etc., impress most of us as odd:

"My mental imagery seems to be of the motile type, strongly characterized by a sense of position and direction. My visual images are poor. I can only obtain the visual image of a familiar face by successively giving my attention to the separate features; the whole face does not appear to my mind. A word is indelibly fixed in my mind if I trace its characters on the palm of my left hand with the forefinger of my right. The mention of an author or a book brings up the position which that work occupies on the shelves with which I am familiar, but does not call up the looks of the surroundings. The idea of the cardinal points of the compass never leaves me, though it is frequently a mistaken one. In the city of Chicago my only guide is this

sense of direction, which seldom leads me astray. I doubt my ability to locate by streets or by adjacent structures the buildings with which I am most familiar. Words representing things that I have seen always give me a sense of their direction and position. Other words are invariably associated with the feeling of articulating them. In the act of writing each letter is mentally pronounced. Among my early memories is one of firing a revolver. I remember pulling the trigger, but not the report that followed."

Many of the students found themselves unable to imagine movement in any form. As they call to mind the feet of a trotting horse in a race, the feet appear as they do in a photograph and the idea of thinking of the feet in motion seems an impossibility. As they try to think how a sprinter appears in a race they are able to think of him only in one position and as having one foot in the air ready to come down, but the foot will not fall.

DIVERSIFIED FORMS OF MENTAL IMAGERY.

Many can form distinct images of touch and of pain, while many others cannot. The following extract is from a report of a student who possesses poor visual imagery, but most excellent imagery of sound, pain and touch. In recalling a fire which I witnessed I can hear the church bells ringing out the alarm, and can plainly distinguish between the deep tones of one and the higher pitch of the other. All the confusion of sound now comes to me—the shouting from different quarters of the town, the sound of footsteps on the board sidewalks, even the sound of my own

breathing and puffing and of those running by my side. I have no really distinct vision of the fire itself, but can hear the cracking of breaking glass, the peculiar roar of a huge blaze, and the excited voices of the crowd. The picture is one of confusion, and noise predominates. I can easily see in imagination the faces of my acquaintances, but it is easier to hear their voices. In playing accompaniments to mandolin pieces upon a guitar, I derive almost the same amount of pleasure whether the other instruments are present or not. My imagination supplies all the absent parts. I can accompany and hear an air which is too difficult for me to render on a piano or by whistling; in my imagination every note is vivid. As for images of touch, they are most vivid to me when I hear or listen to accounts of surgical operations. If such accounts refer to a broken leg, there is a painful sensation in that part of my own anatomy, and I fear to step with that leg lest I hurt it. If I see a fly crawling on anyone, I have an intense desire to brush it off, and feel relieved if I rub my face vigorously in the corresponding part."

Many men find that they are unable to imagine the odor of an absent flower or at best cannot hold the image for more than an instant of time. There seem to be very many persons who are unable to imagine the taste of foods or of drinks; others seem to be well endowed with such ability.

CONCLUSION.

Ordinarily we have no means for knowing the forms in which our companions do their thinking. We know the results of their mental processes, and it is only the results

that we are usually interested in. We hardly take the trouble to identify the forms in which we do our own thinking, and we have assumed that our form of thinking is the same as that of all other persons, and so have given no attention to the subject. Of all these students none supposed that his form of thinking was different from that of his neighbor. To one the world presents itself as a great panorama; to another it is a series of sounds; to another it is primarily an organism of movements. Some are impressed by one aspect of the environment and others by other aspects. That which appeals to one may have no meaning to the other. That which thrills one will be devoid of emotion for another. Every public speaker is naturally inclined to appeal to that form of imagery which impresses him most, and yet it may be a form which is without meaning to many of his hearers. Some of our great orators appeal primarily to one special form of imagery, while others appeal to several different forms. Since the orator is so dependent upon his special form of imagery for the presentation of his address, and since his appeal is so largely to the imagination of his hearers, it is self-evident that the study of mental imagery will have a valuable message for all public speakers, and in another chapter we shall consider the subject of mental imagery in its relation to the orator and to oratory, and incidentally to other agents and forms of artistic representation.

Mental Imagery in Public Speaking.

CHAPTER II.

Mental Imagery in Public Speaking.

ORATORY AND THE IMAGINATION.

Oratory, poetry and philosophy are frequently thought of as having nothing in common. The imagination is supposed to have nothing to do with philosophy and to add only the embellishments to poetry and oratory. Such a conception is untrue and altogether misleading. Philosophy is similar to poetry and oratory in that the function of each is to reveal reality and as a means to accomplish this end all three rely upon the imagination. The philosopher sees in imagination the reign of universal laws and strives to proclaim them. The poet sees in imagination the beauty of a scene and seeks to impart his vision. The orator sees in imagination the reality of a great truth; he feels its importance to humanity, and is impelled to reveal to others that which has already appeared to him. The imagination does not supply merely the veneer and the polish, for this is the least important of its functions. The great function of the imagination is to reveal to us the innumerable forms of reality.

THE PLACE OF THE IMAGINATION IN THINKING.

Modern psychology has shown us that what we call seeing, hearing, feeling, etc., is more than half the work of the imagination. As I turn my eyes upon a piece of polished

marble, I seem to see the smoothness, although in reality smoothness is not visible, but subject only to the sense of touch. And when I seem to perceive smoothness by means of my eyes I am in fact adding it by means of my imagination. As I sit in my room and hear a noise in the street. I seem to hear a carriage passing, when in reality all I perceive is sound, and my imagination adds the interpretation.

The part which the imagination takes in perception is not greater than its function in judgments. When I pronounce the Matterhorn as more beautiful than Pike's Peak, I see in imagination each of these mountains and compare the two mental images. When I judge beef steak to be more palatable than fat pork I form a mental image of the steak and of the pork, and the image of one is more pleasing than the other.

Reasoning is often thought of as the highest function of the human mind and it is supposed by many that such a process is far removed from imagination, and yet such is not the case. No act of pure reason is independent of imagination. A friend asks a scientist how to remove the cap from a fountain pen when it is too tight to be removed by hand. The mental process which the scientist goes through is something like this: He holds in mind a distinct image of the pen and the sticking cap. He then tries to think of the pen in various situations. If this does not avail, he tries to think of the different qualities of the metal (or rubber) cap, and at last thinks of the quality of "expansion by heat." He then sees in imagination the cap immersed in hot water, as expanding, and coming off with but little

strain. Much of this process of pure reason is the work of the imagination.

Even in the profoundest works of reason the work of the imagination performs a leading part. Immanuel Kant saw his famous categories not with his physical eye, but only in imagination. In all realms of thought and activity the imagination is the great revealer of reality, and as such its place cannot well be overestimated in oratory. It is by means of the imagination that we grasp reality for ourselves, and it is by this means that we reveal it to others. The orator is one who surpasses his fellows in his power of imagining reality and in revealing it to others. While his fellows may know reality in its abstract expression, he sees it in such concrete form that it can be revealed effectively to others. He uses his imagination not to make the unreal seem real, but to present the real in such concreted form that it will appeal to all as the reality. The imagination is not for the purpose of deception, but for the more worthy end of revelation.

THE PLACE OF THE IMAGINATION IN THE EMOTIONS.

The place of the imagination in pure thinking (perception, judgments, and reason) is not greater than its place in the emotions. Every public speaker attempts to awaken the emotions of his hearers but such attempts are frequently futile. The methods used by different speakers to arouse the emotions are diverse and often are the products of imitation or of chance. Certain speakers are effective in the production of one class of emotions and fail with the

other classes, although they are unable to explain either their successes or failures. A study of the awakening of emotions in general may be of benefit in helping to understand the methods which are available by the public speaker.

The first thing that we observe in such a study is that our emotions are awakened by concrete situations presented to the mind. Abstractions and generalities never awaken emotions in the normal mind even though they are conveyed to us with the height of intensity and with great demonstrations. We find that in newspaper accounts we are more affected by a vivid description of the suffering of a single unfortunate than by the abstract statement of fact that thousands were killed by the overflow or in the battle. I am frightened when alone at night in the woods and suddenly hear the howling of hungry wolves. The statement that hungry wolves are dangerous does not impress me at all. Descriptions of the Iroquois Theater diaster were made strong by the fact that the reporters gave vivid descriptions of the sufferings of individuals, and then the statement that there were hundreds of such cases added its cumulative effect. If there had been no descriptions of the individual cases, but all the descriptions had been of a general nature, the readers might have remarked that it was a terrible thing, but their statements would be of a logical rather than of an emotional nature. The preachers of a past generation were able to awaken an awe-inspiring dread not by telling of the general nature of a future punishment. Their descriptions were not abstract and general

statements, but were concrete and specific. Hell as described by them consisted of the actual concrete elements of fire, brimstone, etc., with which every listener had more or less experience.

The emotions, then, are stirred by objects present to the senses (e. g., wolves in a dark forest), or by such objects as can easily be imagined. That which I do not perceive or that of which I have no distinct mental image is incapable of awakening my emotions. The lesson for the public speaker, then, is this: Never attempt to awaken the emotions of your hearers without presenting the emotional object so clearly that they are capable of forming a vivid mental image of it. The resultant emotion will be in the degree to which the object is emotional and in the completeness of the mental image awakened in the minds of the hearers. I am not able to form a mental image of ten thousand persons drowning, or of eight hundred burning, but I can form a very vivid image of one man drowning or being burned. I cannot form a mental image of future punishment except it be of the suffering of a single (or a few) individual in special concrete situations. I heard the statement that New York farmers plowed under millions of daisies annually, and the statement appealed to my intellect, but not to my heart. I read the poem of Burns, "To a Mountain Daisy," and the entire scene stood out vividly before my eyes, and the result was decidedly emotional. To awaken the emotions the orator must reveal that of which he has a distinct mental image, and his description should result in the formation of such images by his hear-

ers, otherwise the anticipated results will be disappointing both to the speaker and the hearer.

OUR DESCRIPTIONS REFLECT THE NATURE OF OUR MENTAL IMAGERY.

We have thus far seen that the imagination is necessary for rational thinking and also for the emotions. In the preceding chapter we saw that the imagination of some persons resulted in strong mental images, while in others the result was very poor. Most persons have fairly good visual images, but there are some whose visual images are indistinct, hazy and ineffectual. The same could be said of all the different forms of images except that the order of frequency as to strength of the different classes is probably the following: visual, auditory, motor, tactile, olfactory, gustatory and finally of pain and temperature.

It seems that our observations and descriptions depend upon the nature of our mental imagery. If there were a group of reporters on a battlefield, and each with a different form of imagery, we might expect very different reports from them. One would report the appearance of the uniforms, the gleaming weapons, the clouds of smoke, the expression of agony on the faces of the wounded and the smoke-covered enemy in the distance. Another might tell of the roar of the cannons, the call of the trumpet, the beat of a drum, the commands of the officers, the wail of the dying and the sympathetic voices of the comforters. Another would tell of the marching squadrons, the waving banners, the prancing of war horses, the advance and the

retreat of the enemy. Others would tell of the keen edge of the swords, the smell of the odor of smoke, the shortage of food, the severity of the wounds or of the oppressive heat,—each one according to his prevailing form of mental imagery.

MARSTON'S MENTAL IMAGERY.

It is assumed by many that this tendency to describe events according to our form of imagery is so pronounced that by reading any author's productions we are able to tell his form of imagery. The following quotation is from Philip Burke Marston, the blind poet. He is, of course, entirely devoid of all visual images, and his description of a garden would indicate this fact. He does make two possible references to sight ("skies were dark . . . red . . . poppies"), but these references are due to verbal imitation on his part, and have no real meaning for him.

"All my roses are dead in my Garden—
What shall I do?
Winds, in the night without pity or pardon,
Came there and slew.

"All my song birds are dead in their bushes—
Woe for such thing!
Robins and linnets and blackbirds and thrushes
Dead, with stiff wing.

"Oh, my Garden! rifled and flowerless,
Waste now and drear;
Oh, my Garden! barren and bowerless,
Through all the year.

"Oh, my dead birds! each in his nest there,
So cold and stark!
What was the horrible death that pressed there
When skies were dark?

"What shall I do for my roses' sweetness
The summer round—
For all my Garden's divine completeness
Of scent and sound?

"I will leave my Garden for winds to harry:
Where once was peace,
Let the bramble vine and wild brier marry,
And greatly increase.

"But I will go to a land men know not—
A far, still land,
Where no birds come and where roses blow not,
And no trees stand—

"Where no fruit grows, where no Spring makes riot,
But, row on row,
Heavy, and red, and pregnant with quiet
The poppies blow.

"And there shall I be made whole of sorrow,
Have no more care—
No bitter thought of the coming morrow,
Or days that were."

OUR APPRECIATION DEPENDS ON THE FORM OF OUR MENTAL IMAGERY.

To a person with prevailing visual imagery this description of an earthly garden and a heavenly paradise seems woefully inadequate and devoid of emotional coloring. To one with prevailing imagery for sound, touch, odor and temperature such a description is most adequate, and even emotional.

We enjoy descriptions which awaken our prevailing form of imagery, but descriptions which demand for their interpretation forms of imagery which we do not possess displease us. Victor Hugo's classic description of the field of the battle of Waterloo is an unmitigated bore to those who are unable to form the requisite visual images.

Speakers who attempt to use imagery other than that which is their prevailing form are liable to make the most ludicrous mistakes without suspecting it. The following is an example: "The cup of Ireland's misery has long been running over, but is not yet full." To many hearers also this would pass unnoticed simply because no mental image interprets the words and gives them meaning.

The following passage from "A Midsummer Night's Dream" may be read in all seriousness by one lacking visual imagery. The words which refer to color are not interpreted in terms of vision, and hence there is no incongruity, and the passage fails to awaken a smile:

"O Pyramus, arise!
Speak, speak. Quite dumb?
Dead, dead? A tomb
Must cover thy sweet eyes.
These lily lips,
This cherry nose,
These yellow cowslip cheeks,
Are gone, are gone:
Lovers, make moan,
His eyes were green as leeks."

In actual life most of us use our eyes more than any other of our senses. By sight we recognize our clothes, tools, friends, foods and drink more than from the other senses. The world is not fully appreciated by one who lacks any of his senses. The blind or the deaf lack much in knowledge and enjoyment which the rest of us enjoy. We become wearied with the use of one sense organ and seek rest by the use of the other senses. Likewise, in the use of our imagination, we may profit most by the use of one class of images, but the others play at least a subordinate part, and are necessary for a full revelation of the reality of the world. We like to have the appeal made to our prevailing form of imagery, but a continuous appeal would be monotonous and at best would not reveal the whole truth, for there are none of us who has his thinking confined exclusively to one form.

That orator pleases and moves me most who appeals most to my prevailing form of imagery but who relieves the monotony by not infrequent appeals to all my different

forms of imagery. We would naturally suppose that the most successful orators, writers, and speakers would possess strong visual imagery and that all the other forms would be well developed. Such a supposition is supported by the facts as discovered by recent investigators.

SHAKESPEARE'S AND MILTON'S MENTAL IMAGERY.

Professor Reuben Post Halleck made a study of the two greatest of all English-speaking authors, Shakespeare and Milton, and has found their mental imagery to be phenomenal. Professor Halleck assumes that these writers had as they wrote distinct images similar to those which we must have to interpret what they wrote. For instance, it is assumed that Milton had in mind an image of odor when he penned the following:

> "And early, ere the odorous breath of morn
> Awakes the slumbering leaves."

Milton is credited with having an image of taste in mind when he wrote these lines:

> "She turns, on hospitable thought intent
> What choice to choose for delicacy best,
> What order so contrived as not to mix
> Tastes not well joined, inelegant, but bring
> Taste after taste upheld with kindliest change."

The next quotation is assumed as an instance when Shakespeare had in mind a distinct image of touch:

> "Love's feeling is more soft and sensible
> Than are the tender horns of cockled snails."

It seems evident that Shakespeare thinks in terms of temperature when he conceives the following:

> " O, who can hold a fire in his hand
> By thinking on the frosty Caucasus?
> Or eloy the edge of appetite
> By bare imagination of a feast?
> Or wallow naked in December snow
> By thinking on fantastic summer's heat? "

It is certainly true that none can fully appreciate the next passage unless he can in imagination hear the sounds which Milton heard when he wrote them:

> " Oft listening how the hounds and horn
> Cheerily rouse the slumbering morn
> From the side of some hoar hill,
> Through the high wood echoing shrill.
>
> . . . .
>
> " While the plowman near at hand
> Whistles o'er the furrow'd land
> And the milkmaid singeth blithe
> And the mower whets his scythe.
>
> . . . .
>
> " While the bee with honeyed thigh
> That at her flowery work doth sing,
> And the waters murmuring,
> With such consort as they keep,
> Entice the dewy-feathered sleep."

The next passage is tabulated as one in which Shakespeare saw in imagination that which he described:

"The cowslips tall her pensioners be;
In their gold coats spots you see,—
These be rubies, fairy favours,
In these freckles lie their savors.
I must go see some dewdrops here,
And hang a pearl in every cowslip's ear."

The investigation discovered an abundance of passages similar to those quoted above which demand good mental imagery for their production and interpretation. The appeal was not to one class of images in particular, but frequent appeals were made to all, though most to visual.

Professor Wilfrid Lay made an attempt to determine the form of mental imagery of several of our greatest writers. The following are the results secured from the first 1,000 lines of Tennyson's "The Marriage of Geraint" and from the first 1,000 lines of Browning's "The Ring and the Book." The figures in the columns indicate the number of times that each class of mental images was called forth in the mind of the reader:

In the first 1,000 lines of there are:	Tennyson examples.	Browning examples.
Visual imagery	83	107
Auditory imagery	48	40
Olfactory imagery	0	2
Motor imagery	1	10
Thermal imagery	1	3
Tactile imagery	7	11
Gustatory imagery	0	4

In certain cases a single description covered several lines and appeal was made to but a single form of imagery. The following from the selection from Tennyson appeals almost exclusively to visual imagery:

> "But never light and shade
> Coursed one another more on open ground
> Beneath a troubled heaven than red and pale
> Across the face of Ænid."

These results indicate how frequently great writers make use of mental images and how general they are in their appeal.

THE MENTAL IMAGERY OF GREAT ORATORS.

Investigations were carried on recently at Northwestern University to determine the use of mental imagery among the world's greatest orators. Suffice it to say that the results secured were in perfect harmony with those presented above for authors. The great orators make frequent use of diversified forms of mental imagery. They use visual imagery much more than other forms, but all make frequent use of the others, and some, e. g., Daniel Webster, Wendell Phillips and Edward Everett, make a very frequent use of auditory and motor images. In general the great orators use visual imagery as much as all other forms combined.

The evidence from all sources seems to unite in teaching us that the orator should pay special heed to the development and use of his imagination. It is probably true that each can do his best work only in the sphere of his best

images and that scenes that are not vivid in the imagination of the writer will be no clearer in the mind of the hearer. One who does not hear the roar of battle would be an unlikely person to write a vivid account of it. Different forms of images are not only good in relieving the monotony which would follow from the use of a single form, but particular forms are necessary for certain expressions of truth and for accomplishing particular results. We all are more frightened at roaring thunder than at flashing lightning. The growl of a dog is more terrifying than the show of his teeth. Likewise presentations which awaken auditory images are more productive of terror than those which awaken images of sight. Thus, for accomplishing different purposes different forms of imagery are to be sought. Quintilian defined the orator as a good man prepared to speak and no man is completely equipped to speak, to reveal the full truth with all its convincing power, who is not able to clothe it in all the available forms of mental imagery.

NEW FORMS OF MENTAL IMAGERY MAY BE DEVELOPED.

If a young bird does not hear the song of its own species during the first year of its life, it will never be able to acquire the ability to sing with accuracy the song of its own kind. Most of our mental functions are developed early in life or else they never reach a high degree of proficiency. The proper time to develop all the different forms of mental imagery is during the early years of childhood. If such development does not take place at the proper time, the results which are later available are not the most per-

fect, but are well worth striving for. It is universally admitted that the different forms of imagery may be developed late in life by persistent attention to the subject. It may happen from chance or from habit that a writer neglects certain forms of imagery and that attention to the subject would lend variety and completeness to his productions.

Modern Theories of the Emotions.

CHAPTER III.

Modern Theories of the Emotions.

THE NOVELISTS' DESCRIPTIONS OF THE EMOTIONS.

Professional psychologists have not devoted so much attention to the subject of the emotions as to certain other mental processes. This deficiency has, however, been overcome by the excellent descriptions of emotions as presented by our great novelists, poets and dramatists. The greatness of many of our most gifted authors is especially apparent in their insight into the human heart.

Theoretical discussions of the emotions have been proverbially uninteresting, while incidental descriptions of concrete emotions as found in the best works of fiction are sure to be read with avidity. We are not interested in classifications of the diverse human emotions, but we turn with delight to the writings of the novelist who describes individual emotions so that we actually feel them. We understand the emotions by experiencing them. The skill of the novelist is shown in that he presents the object of the emotions in such a way that we love with the lover and hate with the avenger.

Exact definitions of emotions are difficult to formulate, and they assist but little in clarifying our ideas upon the subject. We all know what is meant when we speak of dread, anger, hatred, love, sympathy, expectation, disappointment, and numerous other emotions. In all of these experiences

there is some thing which is the object of our dread, hatred, anger, love, etc. Each of the experiences has an element of pleasure or pain. In each case there is a bodily commotion of greater or less intensity. The action of the mind is intense and tumultuous in an unusual degree.

An understanding of the emotions is of primal importance to every public speaker, for his success or failure depends more upon his ability to stir the emotions than upon his ability to instruct the intellect or to move the will. Because of this importance of the subject in this present chapter the writer will attempt to present a theory of the emotions which is especially helpful to the public speaker, even though somewhat difficult of comprehension as ordinarily presented.

THE JAMES-LANGE THEORY STATED.

The theory is known as the James-Lange theory of the emotions. It receives its name from the names of the two men who simultaneously formulated the theory, i. e., Professor Williams James, of Harvard, and Professor Carl Lange, of Copenhagen. These formulations were commenced about thirty years ago, and upon their first publications met with severe criticism. Indeed, it seems to be a fact that almost every one rejects the theory upon its first presentation. It has, however, been able to withstand the attacks of the shrewdest critics for these thirty years, and it is to-day certainly the most widely accepted theory which has been presented. Below will follow a presentation of the theory and arguments in favor of it.

If a subject of an earthquake calamity were able to observe his own mental processes and bodily acts during the moments of the quake, he probably would say that as soon as the earth began to tremble and to cause his room to rise and sink before his eyes and beneath his feet, he was at once overcome with an indescribable horror. He would assert that immediately succeeding this feeling his heart stopped beating for a moment and then began to palpitate; his breathing was at first suspended, only to be followed by gasping and panting for breath; he began to tremble, to turn pale, and perhaps to collapse and fall helpless to the floor. He would assert that all these bodily manifestations followed the arousal of the emotion of dread, and that they were but the normal expression of it. According to the James-Lange theory of the emotions, this account is incorrect. This theory would invert the order of events and assert that the trembling, etc., preceded the awakening of the emotion. Accordingly the events should follow in this order: The perception of the earthquake (this as an intellectual and not as an emotional act); instinctive changes in the action of the heart, lungs, and the glands and muscles generally; finally, the mental state known as an emotion.

The bodily responses are then not in reality the expression of the emotions, but are the cause of it. As Professor James states it, the bodily changes follow directly the perception of the exciting fact, and our feeling of the same changes as they occur *is* the emotion. "Common sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and

strike. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must first be interposed between, and that the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble because we are sorry, angry, or fearful, as the case may be. Without the bodily states following upon the perception, the latter would be purely cognitive in form, pale, colorless, destitute of emotional warmth. We might then see the bear and judge it best to run, receive the insult and deem it right to strike, but we should not actually *feel* afraid or angry." In this passage Professor James has expressed himself in such a paradoxical way that he not only challenges attention, but in the minds of most readers arouses antagonism to the theory. When he says, for instance, "angry because we strike," under the term *strike* he implies all the bodily manifestations which are associated with anger, e. g., such as a rush of blood to the head and face, increased rapidity in circulation and perspiration, involuntary contraction of various muscles, etc.

Stated in this bold form, the theory is likely to meet with severe criticism, and unless it had been supported by cogent arguments, it would have met with little success. The arguments as presented by Professor James in connection with his formulation of the theory have a cumulative effect. With certain readers one argument has been considered adequate, and with others one of the other arguments. They are the

four following and should be considered as cumulative evidence, and not as four distinct and complete demonstrations.

FIRST PROOF: CUTANEOUS SHIVERS, FAINTING.

Certain particular perceptions do produce widespread bodily effect by a sort of immediate physical influence, antecedent to an arousal of an emotion or an emotional idea. When listening to music most persons have been surprised by having a cutaneous shiver flow over them. This is especially manifested in the region of the spine. In many instances the individual is not unusually interested in the rendition, and is certainly not aware of any emotion antecedent to the shiver, but this latter seems to follow directly the perception of the music. The same thing happens when we are listening to an oration, a drama, or any form of heroic presentation.

Under certain conditions we are surprised and sometimes embarrassed by a sudden flow of tears, which seems to precede any emotional idea sufficient to account for them.

Young children in certain instances have no dread of blood, as far as they know, and yet the sight of it may lead to the most extreme bodily effects. Instances are narrated of children playing with blood, and, with no apparent dread of it, falling over in a faint. Children thus affected may wonder what it was which caused the fainting. In these cases the bodily responses seem to precede the emotion.

SECOND PROOF: PATHOLOGICAL EMOTIONS.

Because of conditions of the bodily organism, brought about by disease or otherwise, our circulation, respiration, muscular tonicity, etc., may be affected as it actually is

affected in certain emotions. In such cases the emotion follows spontaneously and we are thus the victims of unmotived dread, self-glorification, etc. Thus, because of bodily derangements, a subject may have difficulty in drawing a full breath; his heart beats may be more rapid, but less effective; his muscles may be drawn in a way which causes him to crouch and remain motionless. Under such conditions, the subject actually has the emotion of dread. Other cases occur in which the bodily changes are in the direction of those common to the emotion of self-glorification. In these instances the patient, instead of being despondent because of his affliction, is possessed by the emotion of self-glorification, even though he be an inmate of a poor farm. In certain of these pathological cases the individual knows that his emotion is absurd, but it is practically impossible to overcome it until he is able to control the bodily responses. The emotion appears to be caused by the bodily changes and the feeling of these changes as they occur seems to be the substance of the emotion.

THIRD PROOF: BODILY CHANGES FELT.

One of the results of modern investigation is to call to our attention multitudes of bodily changes which may occur from time to time in the action of glands and muscles, in the processes of digestion, respiration, perspiration, circulation, contraction of the muscles of the vaso-motor system, etc., etc. Many of these changes are produced involuntarily, and usually never catch our attention. Some of them may be produced voluntarily and some artificially by mechanical or

electrical stimulation. It is found that practically all of these changes have an immediate effect on consciousness. The extent to which these changes are felt is most astounding to those who have not observed it. Let the reader contract the muscles of his face as he does when he laughs or smiles, expand the chest, and contract the extensor muscles as far as possible all over the body. The effect will be so great that the smiling face will be but an adequate expression for the emotion actually present. Let the reader then droop down in his chair, bow the head, wrinkle the brow, contract the chest, speak in a minor key, and, as far as possible, contract all the flexor muscles of the entire organism. The result will be immediate and pronounced. The bodily changes are felt as soon as they are made.

By a slight amount of practice students of dreams acquire the ability to awake as soon as the dream is completed and to write down a complete description of it. Likewise those interested in the study of emotions can acquire the ability to interrupt certain of their emotions and to observe the nature of their emotions. In worry one finds his corrugator muscle contracted, which, of course, results in vertical wrinkles in the forehead. The voluntary formation of these wrinkles inclines to the realization of this emotion. When embarrassed one finds the center of the trouble in the pharynx with the resultant lump in the throat.

The gist of this third argument is that we are capable of a multitude of diverse bodily changes, and that these changes are felt in consciousness distinctly or obscurely the moment they occur. If such changes should follow immediately upon

the perception of an emotional object they might be the true cause of the emotions.

FOURTH PROOF: CONCEPT OF EMOTION WITHOUT BODILY ACTION.

Professor James regarded his fourth proof to be the most important in substantiating his theory. The argument is, in general, this. I have a most vivid conception of many emotions, but when I take away from this conception all the feelings of its bodily symptoms, I find that I have nothing left. There is no "mind-stuff" out of which the emotion might be constituted, and nothing is left which might be called emotional. If there is anything left at all, it is coldly intellectual. I know all too well what it is to be frightened, but when from my conception of fright, as I recall it in imagination, I abstract the trembling of my limbs, the cold sweat, the palpitation of my heart, the difficulty of breathing, the dryness of my mouth, the tendency of my hair to stand on end, and all other feelings of bodily symptoms, I find that there is nothing left of my emotion except a cold recognition of the fact that the snake is encircling my limb. I find that my image of an emotion of joy has evaporated when I abstract from it the feelings which are caused by the smile on my face, by the vigorous beating of my heart, by the added strength of my muscles, the expansion of my whole body, and by the multitude of other feelings which accompany the bodily changes incident to the emotion of joy. Inasmuch as we seem to have nothing left to our ideas of emotions when we have abstracted from them all feelings of their bodily symp-

toms, the conclusion would seem to follow that these feelings of bodily changes are the substance of the emotions, and that by subtracting them we have no emotion left.

A "POSITIVE" PROOF.

Professor James did not regard these four proofs as absolutely convincing, and in 1890 made the following statement: "A positive proof of the theory would, on the other hand, be given if we could find a subject absolutely anæsthetic inside and out, but not paralytic, so that the emotion-inspiring object would evoke the usual bodily expression from him, but who, on being consulted, should say that no subjective emotional effect was felt?" It was thought at the time that no such patient would ever be found. But in the "Revue Philosophique" for March, 1894, a patient was reported who fulfilled the conditions in a remarkable degree. The case was of a man forty-four years of age. He was anæsthetic to such an extent that he was absolutely insensible in every cutaneous and mucous surface. The muscular sense was abolished and hunger and satiety did not exist. He could not feel his heart beat; neither could he feel himself breathe. As he said, "I am insensible to everything; nothing interests me. I love nobody; neither do I dislike anybody." This statement is so inclusive that it involves the most fundamental instincts. He does not care for his family, and is not interested in the statement of the physician that he may recover. In speaking of his case the attendant physician says: "Nothing surprises or astonishes him. His state of apathy, of indifference, of extreme emotionlessness,

has developed slowly *pari passu* with the anæsthesia. His case realizes, therefore, as completely as possible the experiment desiderated by Professor James." The only deficiency in this case was that the patient was afflicted with a partial paralysis, and hence certain bodily changes could not be produced even though such changes were necessary "expressions" of certain emotions. The typical case, however, in which there should be complete anæsthesia of all the viscera with no accompanying paralysis had not yet been found.

In the "Revue Philosophique" for 1905 appears an account of a patient who manifested all the symptoms of the ideal case concerning which Professor James had prophesied fifteen years previous. This was a lady who presented herself voluntarily to the hospital of St. Anne, Paris, complaining of a loss of all emotions. She displayed all the outward manifestations of emotion. She could laugh at a funny situation and cry in the presence of sorrow, but could feel nothing of the emotion of joy or sorrow. In the presence of a dread-inspiring object she could turn pale, her heart could beat rapidly, her lungs might act imperfectly as in dread, she might tremble, crouch and show all the ordinary manifestations of dread, and yet she would not suffer the emotion of dread at all. She would recognize the situation as one of dread-inspiring nature, and conclude that it would be well to retire from it, but there would be no emotional element connected with it.

At the same time that she manifested all these bodily symptoms of emotion she was afflicted with anæsthesia of the viscera, and hence could not feel these changes as they took place, and was not at all aware of them. Her sense of sight,

sound, taste, smell and touch were not affected, but she could not feel pain, cold and heat, or any sensation coming from the muscles and viscera.

This patient might be insulted and immediately the blood would rush to her face, her muscles would contract and her hands clench, but these bodily changes would not be the expressions of emotion, for none would be experienced by the patient. The bodily changes could not cause the anger in this case because they could not be felt on account of the anæsthetic condition of the parts affected.

The present chapter is limited to a mere presentation of the theory and the arguments in its substantiation. In the following chapters this theory will be made the basis for further discussion of the emotions in which the significance of the theory for public speakers will be presented.

As stated above, the theory as here presented is the most widely-accepted, and is advocated most heartily by the best students of the emotions. The writer, however, is forced to confess that he has been unable to force himself to its unqualified acceptance, even though the weight of argument and authority is for it. The theory is also the most helpful in understanding the production and control of the emotions, and hence is especially valuable for public speakers. In the succeeding chapters the reader will be convinced of the value of its tentative acceptance, even though future discoveries shall prove it to be but a partial statement of the correct theory of the emotions.

Emotions and Their Expressional Control.

CHAPTER IV.

Emotions and Their Expressional Control.

PARTIAL SUMMARY OF PRECEDING CHAPTER.

The last chapter was devoted to a presentation of the theory of emotions. In the present chapter we shall consider some of the practical results which are to be secured from the knowledge of the theory. The thesis there defended was that in the presence of certain objects, such as a flash of lightning, we make certain well-known bodily movements, and that the feeling of these bodily movements as they occur is the emotion. Bodily feelings are not emotions, but the feeling of these movements as they occur constitutes the essence of the emotional state. Among such bodily movements are all movements of respiration, circulation, perspiration, digestion, and all possible muscular and glandular action. The trembling of the limbs, turning pale, the lump in the throat, the palpitation of the heart, the gasping for breath, the shedding of tears, and the changing of the facial expressions are among some of the most common reactions which thus follow instinctively the perception of an emotional object. "Object" as here used includes memories and anticipations, as well as the presentation of material objects to the senses.

VOLUNTARY SUPPRESSION OF LAUGHTER AND WEEPING.

An apparent exception to this theory is found in the fact that the voluntary suppression of laughter often but intensifies the laughableness of the situation. According to our theory, the expression of the laughter is the essential part of it, and hence to suppress it would simply mean to annihilate it. This exception is rather apparent than real.

The essential ingredient of laughter is not expressed by the more visible movements of facial contortions or the production of audible laughter, but by the more subtle changes which take place in the vitals, and especially in the vaso-motor system. By restraining laughter voluntarily all we do is to restrain the more apparent but non-essential elements.

In this way we prolong the activity which is the most fundamental. The action has a cumulative force, and hence it often happens that laughter which is thus partially restrained actually does increase the funniness of the situation. By the restraint of the movements which are under our control we prolong the activity of those movements which are essential to produce the emotion, and so the seeming repression is an actual augmentation of the expression, and as such would be expected to increase the emotion.

Similarly sorrow which does not find relief in tears seems to contradict the theory. The emotion of laughter is intense only during the act of laughing. The grief is only intense during its expression. The shedding of tears accompanies an emotional state which is too intense to endure. By this

excessive action the nervous system exhausts itself and banishes sorrow. A "good cry" relieves the heartsick and the despondent by bringing to an end the bodily actions which otherwise might endure indefinitely. Sorrow which expresses itself only by the weakening of heart action, constriction of the blood vessels, etc., is the most destructive, not because there is lack of expression, but because there is too much of it. It is the kind that may endure, and hence has a more deleterious result than the forms which pass through a rapid process of exhaustion, with its resultant relief.

EFFECT OF ASSUMING AN EMOTION.

If the bodily symptoms of an emotion are the direct cause of it, what would happen if we should voluntarily produce these symptoms, though there were no logical reason for the emotion? The answer would of necessity follow that crying would produce sorrow and laughing would produce joy. There might be some difficulty in producing in cold blood all the symptoms of sorrow, but to the extent that we are able to produce these symptoms, to that extent are we able actually to bring the emotion of sorrow into existence. This is not a theoretical statement which cannot be tested and for which there is not abundant proof. Let anyone attempt to produce within himself all the real symptoms of an emotion with which he is familiar, and he may be surprised, if the attempt be novel, to discover that the emotion is actually produced. The voluntary production of the symptoms of an emotion may lack some subtle change,—hence be no more

like the real symptoms than the imitated sneeze is like the genuine one. In such instances of failure to produce the exact symptoms there will, of course, be but partial success in awakening the emotion.

The voluntary production of the symptoms of an emotion tends to make the emotion a reality. This fact is of fundamental importance in understanding many of the most significant customs of civilized society. The attitude of worship is insisted upon by our churches. This assumption of the attitude of reverence begets the actual feelings of reverence. Monarchical forms of government demand that the subjects should go through all the forms of respect and loyalty, even where such are not the expressions of the heart. By going through the forms the feeling is cultivated. Polite society renders a great service to humanity by requiring us to act as though we had much regard for the feelings of those with whom we come in contact, even though many such persons are despised by us. Shakespeare expressed a great truth when he said, "Assume a virtue if you have it not." The assumption tends to make the virtue a reality. We come to respect those whom we have bowed down to. One of the best ways to acquire a respect for any one is to go through all the outward symptoms of such a feeling. A successful way of begetting friendship towards a companion is to force ourselves to treat him as a friend.

As stated in the preceding chapter, many persons are able to produce or to eliminate the blues by assuming or refusing to assume the ordinary expressions of that undesirable state.

HOW ACTORS WORK UP AN EMOTION.

It not infrequently happens that the part requires an actor to represent the height of an emotion as he first steps out upon the stage. This is a difficult feat, as it does not offer the possibility of the normal development of the emotion. Under such circumstances, some actors employ the minutes preceding their entrance in working up the emotion by imagining the scene or by listening to the dialogue as pronounced upon the stage preceding the moment of their appearance. Not a few, however, produce the mental condition by voluntarily assuming the necessary bodily conditions. It is narrated of Macready that when he was acting as Shylock he would shake a ladder viciously in order to work up the necessary bodily commotion. Many actors resort to similar devices, such as standing rigid and rocking back and forth, snapping the fingers, clenching the teeth and muttering curses, etc. Doubtless certain involuntary muscles are brought into activity from association with the voluntary ones, and hence the bodily symptoms of the emotion are in a large part produced independent of any thought of the part to be presented. By these devices the actors are assisted in working up the emotion so that they can "strike twelve" at their first appearance before the footlights.

DO PERFORMERS FEEL OR ONLY PRETEND TO FEEL?

If the assumption of the attitude of an emotion produces the emotion, it would seem to follow that public speakers and actors would of necessity feel the emotions which they represent. Is such the case? Can an actor act completely the part

of one enraged without partaking of the feeling? Can an orator assume all the appearance of enthusiasm to such an extent that it becomes infectious and yet be simply feigning the emotion in cold blood? According to the theory here presented, we would be led to suppose that the assumption of the part would beget the emotion which it represents. This is a subject of such vital interest to all public speakers and actors that it is not strange that we find many discussions of the subject by the greatest artists of the stage and platform of all ages. Their testimony was harmonious until about a century ago, when a heated debate arose.

The dispute seems to have been brought about by Diderot, who in his "Paradoxe sur le Comédien," asserts the following:

"Extreme sensibility makes middling actors; middling sensibility makes the ruck of bad actors; a complete absence of sensibility paves the way for the sublime actor." Sensibility as here used indicates nothing more than the ability to feel the emotions, to be emotional and to feel the emotions acted out. Since the time of Diderot numerous great actors and stage authorities have recommended the acquisition of the power to act the emotions without feeling them. Among the necessary qualifications for success on the stage we find good authorities including: "A lack of real feeling, an abundance of pretended feeling, an utter lack of sensitiveness." (Formulated by Miss Cayvan and quoted by Philip G. Hubert in his "The Stage as a Career.")

The world of actors seems to have divided into two schools. The one school, mainly French influence, asserted that it

was impossible to feel the emotion and to act it artistically. Skill in mechanical imitation, united with a lack of emotional nature, became the ideal of this school. The opposing school affirmed that the best effect could be produced on the audience only by those who actually felt the emotion which they were trying to awaken in others.

TESTIMONY OF GREAT ORATORS.

This question is one of such vital importance that it is worth our while to hear what the great orators and actors have to say upon it, and then to seek any light on the subject that our modern theory of emotions might offer. Of the ancient orators and students of oratory, Cicero certainly held the first place. In his discourses upon oratory he has the following to say: "Nor is it possible for the hearer to grieve, or hate, or fear, or to be moved to commiseration and tears, unless the emotions which the speaker wishes to communicate are deeply impressed upon himself, and stamped on his own bosom with characters of fire. . . . Never, I assure you, have I endeavored to excite in the judges the emotions of grief, commiseration, envy or hatred, without becoming sensibly touched myself with the passions I wished to communicate to them."

The words of Quintilian upon this subject are most impressive, not only because of his fame as a teacher of oratory, but also because of the lucidity of expression:

"The chief requisite, then, for moving the feelings of others is, as far as I can judge, that we ourselves be moved; for the assumption of grief, and anger, and indignation, will

be often ridiculous, if we adapt merely our words and looks, and not our minds, to these passions. . . . We are not burned without fire, or wet without moisture; nor does one thing give to another the color which it has not itself. Our first object must be, therefore, that we may impress ourselves with that with which we wish to impress the judge, and that we may be touched ourselves before we begin to touch others.

"I have often seen actors, both in tragedy and comedy, when they laid aside their mask after going through some distressing scene, quit the theater weeping; and if the mere delivery of what is written by another can add such force to fictitious feelings, what effect ought we to produce, when we should feel what we express, and may be moved to the condition of those who are on their trial?

"This art I thought should not be concealed from the reader, the art by which I myself (whatever is or was my real power) conceive that I have attained at least some reputation for ability; and I have often been so affected, that not only tears, but paleness and sorrow, similar to real sorrow, have betrayed my emotions." ("The Education of the Orator," Book VI, Chapter 2.) In this passage Quintilian does not affirm that the assuming of a part will beget the emotion, but he does assert that the successful orator and actor must feel the part in order that the presentation may reach the best results. Quintilian did not think at all of the reflex effect of bodily movements in producing the emotion, and he is quoted merely as a witness to the fact that ancient orators recognized the principle of sincerity as opposed to mechanical imitation in presenting the emotions. Quintilian's theory of

the method of working up the emotions is most helpful, and, although bearing but indirectly upon our subject, it should be quoted in connection with the passage as presented above, as it is necessary for the understanding of his full meaning.

"But by what means, it may be asked, shall we be affected, since our feelings are not in our own power? . . . (this is accomplished by means of) images by which the representation of absent objects are so distinctly represented to the mind that we seem to see them with our eyes, and to have them before us. Whoever shall best conceive such images will have the greatest power in moving the feelings. . . . If I am to make a complaint that a man has been murdered, shall I not bring before my eyes everything that is likely to have happened when the murder occurred? Shall not the assassin suddenly sally forth? Shall not the other tremble, cry out, supplicate, or flee? Shall I not behold the one striking, the other falling? Shall not the blood, the paleness, and last gasp of the expiring victim, present itself fully to my mental view? Hence will result that power, . . . which seems not so much to narrate as to exhibit; and our feelings will be moved not less strongly than if we were actually present at the affairs of which we are speaking."

TESTIMONY OF GREAT ACTORS.

Mr. William Archer has made what seems to be a thorough investigation in answer to the question, "Do actors feel the emotions which they are enacting?" Statements were received from scores of successful actors, and, although the testimony is not unanimous, the great preponderance of evi-

dence is in support of the belief that actors do thoroughly feel the part. The evidence was almost unanimous in respect to grief, dread, anger and certain other emotions in which pain and sorrow enter extensively. In the case of laughter there was a greater diversity of opinion. Some great actors assert that their most infectious and rollicking laughter is nothing but mechanical imitation. It is a significant fact, however, that certain actors who do not feel the emotion of joy in their laughter are not as successful in moving the audience to laugh as to weep. Thus Signor Salvini writes, " To me it is more difficult to compass mirth than sorrow. I have almost always wept from real grief upon the stage, but I have never laughed with conscious enjoyment. And in truth my simulated laughter has never transfused itself into the audience, which has remained insensible to my gaiety." Several great comedians confess that their gaiety is but an artificial effort and coldly mechanical. These latter men must, however be regarded as but exceptions to the general rule that the great orators and actors feel thoroughly the emotions as they present them to their public.

OUR THEORY ACCOUNTS FOR DISCREPANT TESTIMONY.

The question naturally arises as to the possibility of completely expressing an emotion and still not feeling it. If the theory of emotions, as presented in the preceding chapter, be correct, then no actor could go through all the bodily symptoms of the emotion without feeling it. The admission that occasionally some actors may present certain emotions extremely well is not a contradiction to the theory.

As far as the audience is concerned, the actor may express an emotion completely by mechanical mimicry extending only to facial expression, voice and limbs. With most orators and actors this mechanical imitation would be an impossibility with the voice, if not with the facial expressions, and even with the limbs, although these latter are much more under voluntary control than the voice. It is probably true with most persons that the action of voice, face and limbs would involve the action of the heart and lungs as well as other visceral actions, although in the case of laughter, which involves movements largely under the control of the will, this might not be a necessary consequence. When the voluntary control of the voice, face and limbs involves the action of the more vital bodily processes the emotion is felt more or less completely. Those orators and actors who are able to imitate successfully and yet not to feel the emotions probably have exceptional ability in divorcing the action of their voice, face and limbs from the more vital actions of the body. They must also have exceptional ability in imitating, otherwise their voices, especially, would fail to ring true. There is no evidence to show that emotions are better rendered by actors and orators who mechanically imitate. There is much evidence to support the theory that the way to move an audience is first to move yourself. Even though one feels the emotion intensely it is not necessary to be so overcome by it that the control of the voice is lost. It is, of course, true that it is severely exhausting to be subject to frequent and intense emotions, but this seems to be the necessary cost for the greatest success on the stage or platform. The symptoms

of the emotions may be voluntarily assumed, but the chance that the assumption will be perfect is very small, while, as Quintilian says, " For what else is the reason that mourners, when their grief is fresh, at least, are heard to utter exclamations of the greatest expressiveness, and their anger sometimes produces eloquence even in the ignorant, but that there are strong sensations in them and sincerity of feeling? In delivering, therefore, whatever we wish to appear like truth, let us assimilate ourselves to the feelings of those who are truly affected, and let our language proceed from such a temper of mind as we would wish to excite in the judge." (" Education of an Orator," VI, 2.)

Emotions and Their Proper Expressional Methods.

CHAPTER V.

Emotions and Their Proper Expressional Methods.

EXPRESSIONS OF EMOTIONS INSTINCTIVELY MADE AND UNDERSTOOD.

In our cold and highly intellectualized Anglo-Saxon civilization language and gesture are used mainly as expressions of ideas. Such a use, however, is a perversion of the primitive function and has been carried to such an extent that we are unable to appreciate the significance of the expressions of peoples who have retained much of the original function of language. It is quite certain that with our primitive ancestors vocalizations, facial changes and gestures served as expressions of feelings and emotions rather than of ideas. With animals the voice is used mainly to express the feelings, and such expressions are understood by all the members of the flock or herd. Animals do not have the power to express ideas or to understand expressions which are coldly intellectual. The very low animals seem to understand instinctively expressions of emotions when uttered by their fellow creatures. The domestic animals frequently indicate great ability in interpreting all forms of emotional expressions in their masters' voices, faces, bearing, and gestures.

Children possess this instinctive ability to interpret manifestations of emotions, but no child ever understood instinctively the expressions of ideas. The expressions of emotions seem to be primeval with the race and inwrought in our very being. Every infant is able to express its sorrow lustily, but it is unable to communicate the fact that a pin is sticking it. It crows with glee in a well-known manner, but it is unable to express the cause of its pleasure. Children cry at the sight of weeping, and they return the smile with every indication of glee. It thus seems that the expression of emotions is a primitive act of man, that all know instinctively how to express their emotions, and that all possess the ability to interpret the expressions of emotions. These conclusions are not all well founded. Individuals possess differences in ability in expressing emotions adequately. Likewise, the rudimentary ability of interpreting such expressions is subject to cultivation.

The methods of expressing and interpreting the expressions of emotions is a subject of interest to all and has been discussed for many centuries. It is of special importance to sculptors, portrait painters, physiognomists, actors, public speakers, dramatists, poets, musicians and psychologists. Although much has been written on the subject, nothing of value seems to have been produced until within the last century. In fact, it seems now that nothing helpful on the subject could have been produced until there was a recognition of the evolution of man, and of the close relationship between the mind and the body. Mere descriptions of emotions were fallacious and of little value. Successful artists

could not tell how they had depicted the proper expressions or how they had been able to express properly an emotion by voice and gesture. There seemed to be no hopes of understanding these expressions until we knew how the emotions were evolved and hence what physical symptoms each emotion must have.

As soon as the evolutionary theory of the universe was formulated and the necessary conception of the unitary development of the mind and body was thoroughly established, the greatest of the world's scientists turned their attention to the subject of the emotions, and their works on the subject are fundamental and are of significance to all interested in the subject of the emotions.

SPENCER'S CONTRIBUTION TO THE SUBJECT.

Herbert Spencer made the first successful attempt to bring order out of chaos in our understanding of the expression of emotions. His famous principle might be expressed as follows: THE VIOLENCE OF THE PHYSICAL EXPRESSIONS IS IN PROPORTION TO THE INTENSITY OF THE EMOTION. The law might also be stated in some such form as this: There is a constant relation between the intensity of the emotion and its corresponding physical phenomena.

Spencer deduced this principle from the hypothesis that there is always a parallelism between the psychical and the physical. There can be no mental process without an accompanying neural action, and this neural action ordinarily leads

to muscular or glandular action. There is no constant relation between the quantity of an idea and the quantity of bodily action. An insignificant idea may result in quantitatively great actions, but in the realm of feelings and emotions such is not the case. Intense feelings result in intense bodily actions; mild feelings and emotions have as their accompaniments mild bodily actions. The intensity of bodily expressions of emotion depends, then, not upon the quality of the emotion, but upon its intensity. The expressions of extreme delight are quite similar to the expressions of extreme distress. It is frequently difficult to tell whether a child is crying or laughing. The stampings of rage are similar to the applause of approval. Trembling accompanies intense delight as well as extreme cases of dread. The cutaneous shiver which frequently accompanies the perception of musical tones is also felt in the presence of the gruesome, the uncanny and the weird.

The vocal apparatus is subject to this same law, and the muscles of the larynx and of the organ of respiration contract and expand in proportion to the intensity of the emotion. The screams of passion are not easily distinguished from the shoutings of pleasure. The deviation of the voice from the normal in loudness is in proportion to the intensity of the emotion. Not only does the emotion change the loudness of the voice, but likewise the pitch. Intense emotion is displayed by either high or low pitch, and there may be a very rapid alternation from the one to the other. This is especially true in such emotions as anger. The "growl" is as much a sign of intense emotion as is the shriek.

EXCESS OF EMOTION CHANGES THE EXPRESSION.

It is a general law that intense emotions always accompany great liberation of nervous energy, and hence widespread and intense muscular actions are always found as concomitants of such emotions. Fainting, trembling, prostration and other similar phenomena are but apparent exceptions to the rule. In all such cases the liberation of nervous energy has been so great that the results are mutually inhibitory. The nervous energy propagated along the nerve which controls the heart's action (the *vagus*) is so great that it paralyzes, as it were, the heart action, and hence the resultant fainting and prostration which ensue as a consequence of the stoppage of the heart. In tremblings of emotion there is an over-contraction of the muscles, but because of the increased action of the *vagus* nerve, the opposing sets of muscles do not remain in balanced equilibrium. The vocal cords are subject to this same condition, and hence their unsteadiness under the influence of intense and depleting emotion.

A COROLLARY TO THE FOREGOING PRINCIPLE.

Spencer presents as a supplement or corollary of the foregoing the following: The nervous excitement which accompanies emotions affects the muscles in the inverse order of their size and the weights of the parts to which they are attached. If the emotion is light, the nervous currents liberated will be light, and only the smaller muscles will be affected and those attached parts which are easily moved. The larger muscles and those whose contractions move the

limbs or other heavy masses will not be affected by slight emotional disturbances. As the emotion increases, the movements of the larger muscle groups are observed and in a somewhat uniform order of sequence. In verification of this fact, Spencer presents the following:

"Primarily, it is because the muscles of the face are relatively small, and are attached to easily-moved parts, that the face is so good an index of the amount of feeling. . . . Apart from the qualitative differences in the contractions of the facial muscles, we infer from quantitative differences, differences in amount of feelings. A face perfectly quiescent we regard as signifying absence of feeling; supposing we have no reason to suspect concealment arising from the intentional arrest of the natural emotions. A very slight contraction of those muscles which wrinkle the outer angles of the eyes, joined perhaps with a just-perceptible motion of the muscles which elongate the mouth, implies a faint wave of pleasurable feeling, due, it may be, to a passing thought. Let the gratification augment, and the smile becomes conspicuous; and if it continues to increase, the mouth opens, the muscles of the larynx and vocal cords contract, and the relatively large muscles controlling respiration being brought into play, there results a laugh. If the excitement grows greater yet, there is still to be traced in the effects of the rising nervous discharge, the same general order: the motions of the head and those of the hands, which are easily made, come before those of the legs and trunk, which require more force to produce them. So that the amount of pleasurable feeling, irrespective of its kind, comes to be indicated

not only by the quantity of muscular contraction, but also by its distribution."

TEARING A PASSION TO TATTERS.

This first principle on the expression of the emotions is subject to many exceptions, some of which will be discussed later, but despite the exceptions, it formulates in a helpful way much that is perplexing. It shows, too, why it is that certain assumed manifestations of emotions meet with such universal disapproval. We are displeased when the bodily movements are in excess of what should ordinarily accompany any particular degree of emotion. Such a performance is commonly styled "tearing a passion to tatters."

A common method of tearing a passion to tatters is by producing an artificial tremolo in the voice when the emotion to be expressed is but slight. Tremolo would naturally be produced only by an emotion so intense that it is paralyzing in its effect. As an accompaniment of the tremolo in the voice we should expect to see all the other natural manifestations of the most extreme forms of emotion. One such manifestation would, of course, be a great diversity in pitch of the voice from the normal.

Another error in expressing the degree of the emotion is seen where an orator begins to make gestures with his full arm and torso before the slight muscles of the face are affected. The incipient degrees of emotions are normally expressed by movements of the facial muscles and of the hands antecedent to any movements of the heavier masses.

On the stage and on the platform we seem to expect and

condone a certain amount of exaggeration of expression just as in the business and professional world all extreme manifestations are tabooed. There may be reason and justification in this apparently arbitrary distinction which we draw. The primal function of the stage and of the platform is to awaken the emotions, while in the business and commercial life we do not want our feelings and emotions to be wrought upon. In one situation we desire a dearth of emotions, and in the other an excess. In keeping with this fact we are willing to have our entertainers over-emphasize expression a little, but when the emphasis becomes so great that we are made conscious of it, the result is highly displeasing.

As stated above, facial expressions are among the first manifestations of emotions, and they are also the ones which show even the lighter moods and feelings. The speaker and the performer are usually somewhat distant from the observer and in order that these facial expressions may be observed at all it is necessary that they should be very much "overdone." An "expressive" face is not criticized, while undue movements of the arms are immediately interpreted as "sawing the air."

We object to exaggerations in connection with certain classes of emotions very much more than with others. Joy may be overdone with impunity where an equal exaggeration of sorrow would produce disgust. In the beginning of an address or presentation of a play the audience is not fully in sympathy with the speaker, does not respond readily to his suggestions, and is in a critical frame of mind. Under such circumstances it is extremely dangerous to attempt a

presentation of any extreme emotion which in any way involves sorrow or pain of any form. We do not resent palpable attempts to cause us to laugh, but woe to the man who tries to make us weep and who is unable to conceal the attempt! An unsuccessful attempt to produce laughter does not cause an estrangement between the speaker and his audience. On the other hand, an evident failure to produce the attempted grief leads to a coldness and indifference which is difficult to overcome. Ordinarily the first emotion appealed to should be one of pleasantness. If this is successful, there is formed a sympathy between the speaker and his audience which makes appeals to the sadder emotions much less hazardous.

Darwin and Wundt's Principles of Emotional Expressions.

CHAPTER VI.

Darwin and Wundt's Principles of Emotional Expressions.

In the preceding chapter there was presented the law governing the *amount* or *intensity* of gesture, facial and vocal expression that should accompany the various degrees of emotions. It was there shown that transgressions of that law resulted in displeasure to the audience and that the performance was regarded as tearing a passion to tatters. Although the law as there presented was extremely suggestive, it is apparent that it is but a partial explanation. Facial expressions differ not only in intensity or extent, but also in *quality*. The same is true of gestures and vocal expressions.

In laughter the corners of the mouth are elevated, while in crying they are depressed. In surprise the eyes are open wide, in pain they are partially closed. In one class of emotions the extensor muscles are contracted, in another class they are relaxed. No two emotions are accompanied by the same bodily movements and hence it becomes a problem to explain *why* each particular emotion is accompanied by one particular form of expression. If we know in advance *why* each emotion must be accompanied by a particular form of expression, we will not be likely to err as to what expressions actually do accompany any particular emotion.

DARWIN'S PRINCIPLE OF EXPLANATION.

Charles Darwin dealt with this subject, and he explained the presence of characteristic movements with each emotion according to what he called THE PRINCIPLE OF SERVICEABLE ASSOCIATED HABITS. (This is to be regarded as our second principle, Spencer's formulation as presented in the preceding chapter being the first.) This principle would explain the well-known movements of sudden fright as follows: Upon the sudden appearance of danger our primitive ancestors would have been destroyed unless they had closed their eyes suddenly to keep out hurtful objects, held their breath preparatory to sudden exertion, crouched to avoid the attack, and unless they had made the necessary movements of escape. These necessary exertions would have left them exhausted unless their heart action had greatly increased in rapidity as well as force, and unless the respiration had likewise become suddenly more active. These various actions became in the course of evolution to be serviceable habits, and were transmitted to succeeding generations. At a later time and under different environments these habits would manifest themselves even though they had ceased to be of any value. Thus at the present time it is of but little value for me, upon hearing the gong of an automobile behind me, to shut my eyes, duck my head, hold my breath, and make a sudden bound. A cool and deliberate stepping aside would really serve the purpose better. But with our ancestors in the presence of a terrifying object conditions were different, and we are compelled to act more or less as they did. We do change the

movements somewhat from those actually performed by our primitive ancestors, but we are unable to affect greatly the action of the involuntary muscles, such as the beating of the heart, the rushing of blood to the head and the gasping for breath. Furthermore, it is the action of these same involuntary muscles which gives the real character to our emotions. We cannot fully comprehend the nature of an emotion, its cause and its effect, unless we know the conditions under which it originated and hence the involuntary movements which would have been of value to our ancestors under such circumstances.

ANGER AN ILLUSTRATION OF THE PRINCIPLE.

Anger is but a weakened form of the mental state of one engaged in the destruction of an adversary. To understand anger in its primitive forms we must therefore consider what must have been the condition of our primitive forebears when they were thus engaged. What bodily actions would have been of assistance to them in the struggle for existence in their deadly conflicts with other creatures? Judging from our knowledge of lower animals, we would say that among other things, the following would have thus assisted them. They would by means of growling and by bristling the hair have terrified their enemies and so more easily have overcome them. By frowns upon the forehead the light would have been kept from shining directly into the eyes. This result would also be furthered by a contraction of the pupils. Long endurance in the strife would be secured by acceleration of heart action, and also by an increase in the quantity of oxy-

gen which was introduced into the system. This increased action of heart and lungs would be necessary also to support even momentarily the greatest exertion of muscular strength. Incidental to the increased heart action, there would be a suffusion of blood to the face and the eyes would become bloodshot and protrude from their sockets. Incidental to the increased action of the lungs the nostrils would become dilated, the chest would be expanded, the rush of air through the closed teeth would result in hisses and frothing at the mouth. As the weapons of destruction were the hands and teeth, the combat would be most speedily won by those who had formed the habit of instinctively raising the arms, clinching the fists, uncovering the teeth and so striking and biting with the greatest effect. It is quite certain that such serviceable habits were acquired by our ancestors and that they manifested themselves when occasions prompted.

That our twentieth century anger or rage is explained by Darwin's principle of serviceable associated habits is made evident when we consider the manner of our movements when under the influence of such emotions. When we are angry we feel the same, but in a weakened form, that our forebears felt when they were engaged in destroying an adversary, and our bodily movements are peculiarly similar to theirs, though less violent. Among the expressions of anger and rage the following are well recognized: The angered man berates his enemy with the most abusing terms in his vocabulary. He curses and swears in a manner which is beastly. His voice may even be similar to a growl, and be uttered through clenched teeth. Even foaming at the mouth

is not infrequently experienced. With some persons the hair bristles and in every way the body assumes the appearance of great size. Ordinarily both vertical and horizontal frowns furrow the brow. The pupils of the eyes grow small. The eye balls become diffused with blood and stand out from their sockets. The circulation and respiration are greatly increased. The face is diffused with blood. The nostrils are dilated. The teeth are ground together. The hands are raised and the fists are clinched. The actual attack may not be made, but there is a decided tendency to rush on the adversary and to do him bodily harm. In all these actions it is seen at once that we hark back to our distant ancestors in a manner which is most astounding. Long before the discovery of the theory of evolution, Shakespeare was impressed with the similarity between the emotions of man and the actions of wild beasts. In "Henry V," Act III, scene 1, we have the following:

"In peace there's nothing so becomes a man,
As modest stillness and humility;
But when the blast of war blows in our ears,
Then imitate the action of the tiger;
Stiffen the sinews, summon up the blood,
Then lend the eye a terrible aspect;
Now set the teeth, and stretch the nostrils wide,
Hold hard the breath, and bind up every spirit
To his full height! On, on, you noblest English."

Fear and anger may serve as illustrations of the application of this second principle which formulates the fact that

the bodily accompaniments of our emotions are merely weakened repetitions of actions which were of utility to our ancestors. Such responses are instinctive with us and are more or less independent of the will. They are commonly of no direct value to us and in certain instances they are positively harmful.

This principle is in no way inconsistent with the one presented in the previous chapter, but is supplementary to it. For instance, in the case of anger, the first principle formulates the fact that the movements become violent in proportion to the intensity of the emotion and that the first indications of the anger are shown by actions of the smaller muscles. The second principle teaches us what particular form of movements accompany anger.

The application of this principle to the emotions has increased greatly the fields for investigation. Our expression of emotions is at best but a weakened repetition of actions which were fully present in lower forms of life. This fact makes it possible for us to learn of human emotions by studying the emotions of animals, children, lower races and the insane, among whom there is no attempt to conceal and to inhibit the full expression of emotions. One of the most helpful books on the subject is Darwin's "Expression of Emotions in Man and Animals," in which the actions of animals are fully discussed. Indeed, all modern students of the emotions make much of the emotions in their purer forms as they are found among individuals low in the scale of civilization.

WUNDT'S SUPPLEMENTARY PRINCIPLE.

The incompleteness of this principle, as presented above, is found in explaining the expressions of emotions which are strictly human, including such emotions as those connected with the æsthetic, the moral, and the religious. Professor Wundt presents a formulation which we may regard as our third principle [the first was presented in the preceding chapter], and which is in a sense a necessary supplement to the two preceding ones. Professor Wundt calls it THE PRINCIPLE OF ASSOCIATION OF RELATED FEELINGS. It has also been expressed as the principle of "acting similarly to analogous feeling *stimuli.*" A "bitter" experience is expressed in a manner similar to the movements we make upon tasting quinine. A "sour" experience is more than a mere figure of speech, for in its expression we look as if we were tasting an acid. While going through an experience that a young girl would call sweet, her lips assume the position adapted for tasting sweets. Disdain is expressed by an action of the nose similar to that shown in experiencing a disgusting odor. Approval shows its relation to sweet smelling fragrance by identity in the action of the muscles of the nose.

This principle of association of related feelings is best illustrated in connection with expressions of the mouth and nose. It is from these organs that the illustrations here presented are drawn and a fuller description of these changes, especially those of the mouth, will serve to clarify the whole principle.

FACIAL EXPRESSIONS OF SIMPLE SENSATIONS.

Figure 1 is a drawing of the human tongue, indicating the part of the tongue which is especially sensitive to each of the four tastes, sweet, sour, bitter and salty. For our present purpose it is necessary to consider but the first three of these tastes. As indicated by the drawing, sweet substances are tasted best by the very tip of the tongue, sour by the sides,

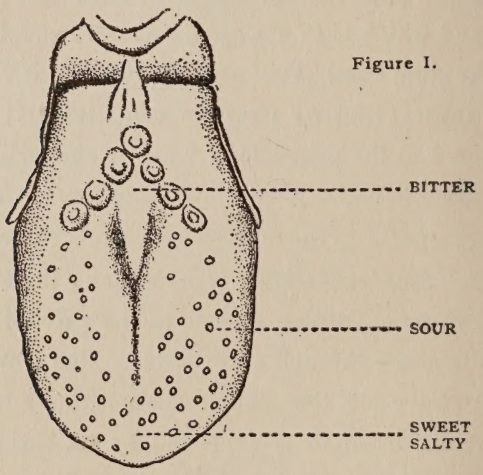

Figure I.

An illustration of the tongue showing the papillæ in which the taste-buds are located. The regions marked sweet, salty, sour and bitter are the parts of the tongue especially sensitive to that taste.

and bitter by the middle of the back part of it. Foods are tasted only as they are in solution. The salivary glands secrete the necessary liquid for dissolving the solid bodies which are brought into the mouth and which are tasteless until dissolved. When a pleasing sweet substance is brought into the mouth it is dissolved as far as possible while in con-

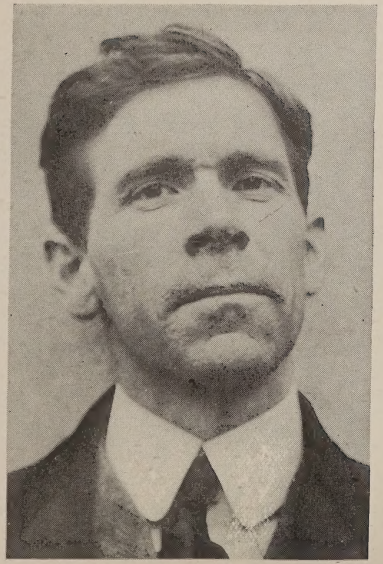

Figure II.

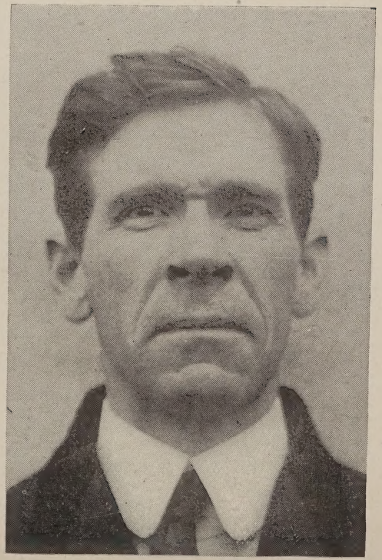

Figure III.

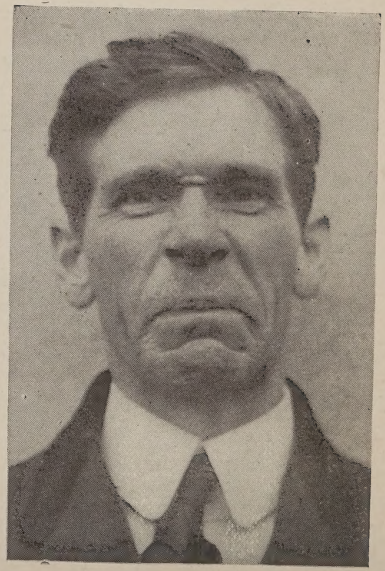

Figure IV.

tact with the tip of the tongue. This is done by compressing the cheeks slightly and by executing a gentle sucking movement. This draws in the lips and raises the corners of the mouth.

Figure 2 is the photograph of a subject tasting a sweet substance. The changes which have taken place in the face are not pronounced. The position of the tongue and cheeks is such as to facilitate the dissolving of the substance near the tip of the tongue. It should also be noticed that in tasting a sweet substance the wings of the nose are extended and drawn upwards, the forehead is comparatively free from wrinkles and the eyes are opened wide.

Figure 3 is the photograph of the same subject, but in the act of tasting a sour substance. Sour substances are usually slightly displeasing, and especially so when intensely sour. Hence in dealing with sour substances we attempt to keep them away from the sides of the mouth, which are especially sensitive to sour substances. This act is manifested outwardly by a widening of the mouth and a lowering of the corners of the mouth. This act keeps the substance in the mouth from being dissolved on the sides of the tongue, where it is most sensitive to such substances.

Bitter is tasted especially by the soft palate and by the center of the back part of the roof of the tongue. As bitter is a displeasing sensation, an attempt is made to swallow bitter objects with a minimum of taste. This is accomplished by drawing up the soft palate against the roof of the mouth and by sinking the base of the tongue. Everything possible is done to keep the saliva from the bitter substance and to

swallow it hastily without bringing it in contact with the back of the tongue and soft palate. Outwardly these actions are betrayed by the fact that in lowering the base of the tongue the corners of the mouth are drawn down, and by the further fact that in drawing up the soft palate the nostrils are raised and violent wrinkles suffuse the face in a characteristic manner.

Figure 4 is the photograph of the same subject, but this time he was photographed while tasting an excessively bitter substance. (It should be understood that in securing the three photographs as presented herewith the subject knew nothing of the results expected. The facial expressions are in every case entirely involuntary and are such as would be secured from any normal subject under similar conditions.) Figure 4 manifests all the characteristics of a bitter taste. The corners of the mouth are drawn down as far as possible, the nostrils are contracted and raised, the eyes partially closed and the entire face is suffused with wrinkles.

In sensing fragrant odors the nostrils are extended and the wings drawn up; in sensing malodorous substances the nostrils are contracted and the wings of the nose drawn down. In the first case these changes are to increase the sensation, and in the second case to free ourselves from it.

In the presence of beautiful objects the eyes are ordinarily opened wide that we may see most clearly; in the presence of ugly or hurtful objects the eyes are often entirely or partially closed.

These expressions of mouth, nose and eyes were developed early in the evolution of the race and became associated with

all pleasant and unpleasant experiences. As the race evolved, and higher forms of pleasures and pains were developed, these primitive forms of expressions were brought into use as expressions of emotions which were similar, but much higher than the simple tastes, odors and sights of primitive life. Our highest emotions bear unmistakable similarity, at the point of feelings of pleasure and pain, to the simple sensations, and according to the law of association of related feelings all emotions having any similarity to bitter are expressed by the well-known facial expressions of bitter tastes, and all the experiences that could metaphorically be called sweet find their normal expressions in forms used in tasting sweets.

Certain authors have attempted to carry this principle beyond the facial expressions and to make it apply to all forms of expressions. Thus Ribot says: "If a man, when puzzled, scratches his head, coughs, rubs his eyes, it is because a slight *malaise* of physical origin and a slight embarrassment of psychical origin have a deep-seated analogy, betraying themselves by the same expressive movements."

Certain of our emotions bear a close relationship to sensations of taste, others to odor, etc. There are many experiences of life which we speak of as bitter and others as sweet. Such experiences find their appropriate expressions by grimaces of the face which ordinarily accompany actual tasting of bitter and sweet morsels. Other experiences are similar to sensations of odor. Thus disdain is expressed by the same movements that are found in sensing malodorous objects.

In sketching, the skill of the artist is shown in his correct

presentation of the lines of the face. Some of these lines are so slight that they scarcely catch our attention, yet when they are correctly represented we appreciate the general effect. Thus many persons do not know that the wings of the nostrils are elevated in laughter and lowered in weeping, and that the upper lip is slightly elevated in weeping, but not in laughter, yet we are moved by the presence of these symptoms.

Much has been written on the subject of the emotions and upon methods of expressing the emotions. In this and the three preceding chapters a strenuous attempt has been made to go to the bottom of the whole matter and to present the fundamentals as far as they are known to modern science. The attempt has been to formulate underlying principles rather than to give a detailed description of the best method of expressing particular emotions and different degrees of the same emotions. The view-point of the public speaker has been constantly in mind, and hence illustrations, inferences and practical applications have been presented which have to do almost exclusively with public speaking.

Students desiring to pursue this subject further, will find the following works helpful:

The best short presentation of the James-Lange theory of emotions is to be found in "Psychology, Briefer Course," by William James, published by Henry Holt & Co.

The best general presentation of the subject of the emotions is found in "The Psychology of the Emotions," by Ribot, published by Scribners.

The following are among the best works on expressions of the emotions:

"Expressions of the Emotions in Man and Animals," by Darwin; any edition.

"Language of the Emotions," by Spencer; any edition.

"Physiologische Psychologie," by Wundt, published by Engelman, Leipzig.

"Voelker Psychologie," by Wundt, published by Engelman, Leipzig.

The emotions considered from an actor's point of view are well presented in "Masks or Faces," by William Archer, published by Longmans.

Several authors have attempted to indicate the exact method of expressing scores of emotions. Ordinarily such work is inaccurate and misleading. Among the best of such attempts is an atlas with 680 heads, each expressing a different emotional condition, together with the explanatory text entitled "Der Ausdruck der Gemütsbewegungen des Menschen," by Heinrich Rudolph, published by Gerhart Kuehtmann, Dresden. This book is in German, and the 680 heads, all of the same man, are all labelled. The reader who does not know German will usually have no trouble in understanding what emotion is intended.

The Fluctuation of Attention.

CHAPTER VII.

The Fluctuation of Attention.

RECURRENT PERIODS OF ACTIVITY AND OF REST.

Many of the organs of the body seem to be in constant activity. Thus the heart beats every day, hour, minute and second. Its activity appears to be unceasing, yet the physiologists tell us that between every beat the heart takes quite a refreshing rest. Every period of activity is followed immediately by a period of rest. Our respiration also seems to be a function that is unceasing in activity, but again the physiologists inform us that this organ is incapable of continuous work for any extended period of time. All functions of the body are like the heart and the lungs in their requirements of periods of rest.

Within the last few decades it has been proved that the functions of the mind are unable to continue their activities for more than short periods of time. Every period of activity is followed by a period of rest. Nothing can change this law. No one by trying can continue a mental process for a very long time. This fact is not apparent at all, and is doubted by many persons when they first hear it. Many readers of this work may suppose that they can put forth sufficient effort to enable themselves to attend to a single object for an hour at a time and with no fluctuations whatever during the entire time. It is recommended

that every reader stop with this sentence, fix his attention on some word on the page, and then see how long he can attend to the word without allowing his attention to wander off to something else. Such a crude test as this will convince the skeptic that he is unable to keep his mind fixed on a single object for an indefinite length of time, but it takes a more accurate method of experimentation to de-

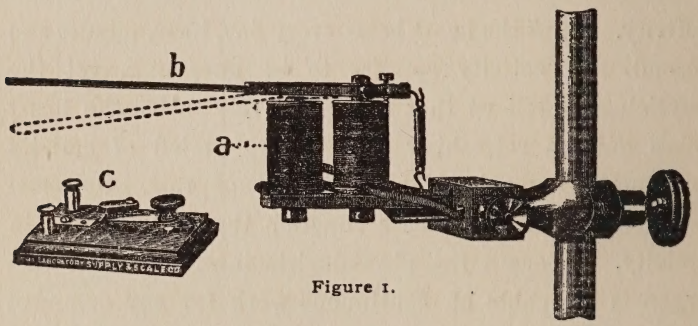

Figure 1.

termine the exact length of time between the fluctuations of the attention.

The problem of the fluctuations of the attention has been taken up by the new psychology, and some most interesting and instructive results have been secured. Some of the questions which have been raised and investigated are the following: For how long a time is it possible to hold the attention steadily upon a single thing (object, idea, etc.)? What are the conditions which lengthen and shorten the fluctuations? How may we take advantage of these fluctuations in facilitating our own thinking or in influencing others?

A PSYCHOLOGICAL EXPERIMENT.

Of all the exact methods of experimenting upon the problem the following is perhaps the most simple and illuminating. As the method employed in this experiment is the one used so extensively in experimental psychology the instruments used will be explained and cuts of them shown.

Figure 1 represents an electro-magnet, connected by wires (not indicated in the figure) with an electric key (c), and also with an electric battery (not indicated in the figure). When the key is pressed the circuit is closed and the magnet (a) draws the stylus (b) to the position indicated by the dotted lines in the figure. As soon as the pressure is removed from the key the electric circuit is broken and the magnet releases the stylus and permits it to fly back to its original position.

Figure 2 is a revolving drum. The drum proper (d) is rotated at any desired speed by means of clock work encased in the base of the instrument (e). The drum is covered with glazed paper, and then it is smoked by holding it in the smoke of a gas or kerosene flame. The lamp black deposited upon the glazed paper comes off very easily, and when a stylus (as b in Fig. 1) is brought against it a clear mark is left. When the markings have been secured the glazed paper is immersed in a shellac solution, which causes the lamp black to harden into a durable surface.

Figure 3 represents a stop watch, with a stylus attachment. With every beat the stylus is raised a small fraction

of an inch. The watch may be adjusted to beat either seconds or fifth of seconds. When the stylus is placed against the smoked paper of the revolving drum a mark is drawn around the drum and at every second or fifth of a second a break in the line is made, as is shown in figure 4.

Figure 5 is a white pasteboard disc, which has pasted on it (or drawn with India ink) small squares of black paper. This disc (known as the Masson disk) is placed on an electric rotator and revolved so rapidly that the black squares cease to be visible as squares, but appear as faint gray rings. The ring farthest from the center is so indistinct that it is not seen at all by most persons. The ring nearest to the center is clearly visible, while the other rings range in distinctness between the two mentioned. Care is taken that the disk is revolved at a uniform rate and in a good light so that objectively there is no variation in the distinctness of the rings from moment to moment.

The experiment upon the fluctuation of attention is conducted upon one person at a time and in a room free from all noises or other disturbances. Ordinarily the person conducting the experiment does not remain in the room with the subject, but communicates with him by means of a telephone or electric signals. The subject is seated before the Masson disk (Fig. 5), which is being revolved in a good light and at a uniformly rapid rate. He places his hand gently upon the electric key (c of Fig. 1), and then fixes his attention on what appears to him to be the ring farthest from the center of the disk. After he has looked steadily at this ring for a short time, it seems to disappear, but soon

appears again. With every apparent disappearance he is instructed to press the electric key, and as soon as the ring appears again to cease pressing it. He is to continue this till the pressing the key becomes almost automatic. The Masson disk, with its rotator, and the electric key are all that are in the room with the subject. The rest of the instruments are in the room with the one conducting the experiment. The experimenter now starts the revolving drum and the stop watch, places the stylus of the electro-magnet against the glazed paper of the drum, and adjusts the stylus of the stop watch immediately above the other stylus, but both so adjusted that their every movement will be recorded on the drum. The subject is perfectly oblivious of what is happening in the recording room, where the experimenter has set up his instruments. The subject continues to press the key and to let it rise as the gray circle disappears and appears again. Every movement he makes is recorded in the recording room, and the experimenter thus secures a record which indicates the exact length of time at which the gray circle was visible and invisible for each time that the subject continued to react.

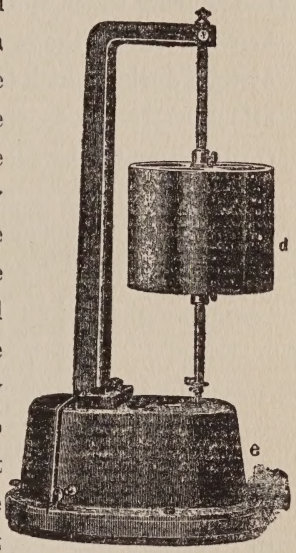

Figure 2

Figure 6 is a reproduction of a small section of a typical record as secured in the psychological laboratory of North-

western University. The top line was made by the stop watch beating seconds. The bottom line is broken by the stylus being drawn down by the electro-magnet. The upper segments of the lower horizontal line indicate the length of time during which the circle was visible, and the lower broken segments of the same horizontal line indicate the length of time during which the gray ring was invisible. The durations expressed by these broken horizontal lines may be easily estimated by comparing their lengths with the time-

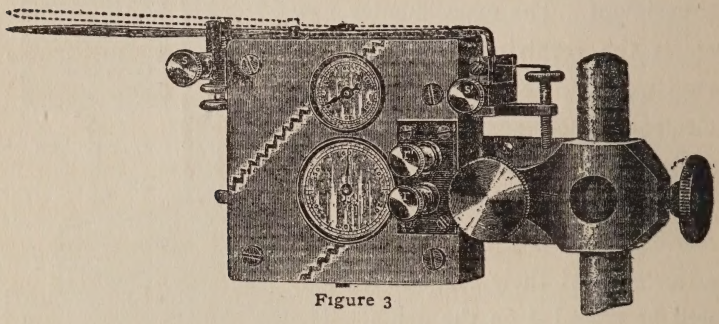

Figure 3

line which is just above them. The ninety vertical strokes in the time-line indicate that the total time measured by this section was ninety seconds. The fifteen lines indicating "visible" consumed about two-thirds of that time, and the fifteen lines indicating "invisible" consumed the other third. That gives an average of four seconds visible and two seconds invisible, or a total of six seconds, for each total wave of the attention. This result is entirely normal and indicates a great fact of mental life. We are not able to attend to the same thing, e. g., a gray ring, for more than a few seconds at a time.

The results as shown in Figure 6 indicate the fact that the fluctuations of the attention are rhythmical and that they occur about every six seconds. It is possible to reduce the uniformity of the rhythm and to shorten or to lengthen the duration within certain limits, but it is safe to say that the fluctuations are more or less rhythmical in character, and that the duration approximates that given in the experiment as described.

SIMPLE EXPERIMENTS SUGGESTED.

Although the experiment seems to be conducted most satisfactorily under the conditions mentioned, it can be conducted by any one and without such elaborate apparatus as are used in a psychological laboratory. Place your watch in a distant part of the room so you can barely hear it tick. Now, try to listen to it, and you will find that you hear it for a while, and then you fail to hear it. This alternation of hearing and failing to hear will occur with more or less regularity if the tick is not heard too distinctly, and if there are no distractions.

A still simpler way is to imagine how your watch ticks, and then try to hear it in imagination continuously. You will thus secure the same results that have been described above.

These fluctuations of the attention have been discovered at all points tested, and psychologists asume that they are universal facts of consciousness.

The rapidity and the rhythmical nature of the fluctuations were discovered in 1888, but the revelation is so astounding

and the results so far reaching that we are not yet able to comprehend them all.

All our thinking is done in "spurts" which are uniformly followed by periods of inactivity. We can think of nothing consecutively for any great length of time. What we have called constant or fixed attention is simply spurts of attention. Do what we will, our attention will not stay fixed, and if we desire to hold it for a longer period of time on an unchangeable object, all we can do is to keep pulling ourselves together repeatedly, and to avoid as far as possible all competing thoughts or counter attractions.

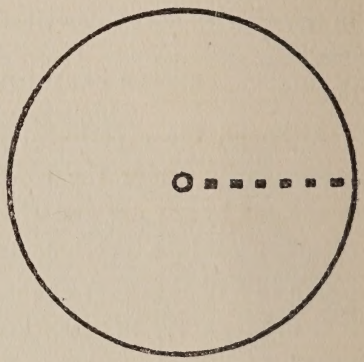

Figure 5

Objects which change, thoughts which develop, may be attended to for a longer period of time than might be anticipated. A thought that will not develop and an object that will not present a new aspect to us cannot be attended to for more than a few seconds, but thoughts which develop, and objects which present new aspects, may be attended to for a long period of time, although the attention will not be uniformly strong all the time.

In a public address it is seldom that we are able to hold the full and undivided attention for more than a few seconds or a few minutes at best. The hearer's attention is

Figure 4.

Figure 6.

Figure 7.

constantly wandering or decreasing in force. He may renew it by personal effort, or else something we say or do may bring back the wandering or waning attention. No one can attend to what we are saying or doing unless we are presenting a new aspect of the subject every few seconds.

Our attention is not a continuum with the single ripples which we have been considering and which are usually known as the waves of attention. There are certain times of the year when we find that we are very efficient and when we can hold an object before us with much greater constancy and completeness than at other times. The same holds true for the single days. Most persons find that during certain of the morning hours their attention is much more constant and complete than during the later hours of the day.

MINUTE WAVES OF ATTENTION.

More recently it has been discovered that there are what have been called "minute waves" of attention. It has been found that in connection with the second waves there are other slower waves of which the second waves are as "partials." Figure 7 indicates this diagramatically. In the figure, a, b, c., indicate heights of the short attention waves, and A+ and B+ indicate high points of the minute wave. The existence of such a wave is fully established, and its effects are most pronounced in speaking, as well as in listening to a public address. Every public speaker has doubtless had the experience of finding himself

able to attend to the matter at hand for a moment, and then he seems to lose all control of himself and what he is trying to accomplish. He may struggle in vain for a short time, and then his strength of attention may come back suddenly, or else gradually, till it has reached the point of highest efficiency of attention when it again begins to wane as indicated by the parts of figure 7 between A+ A—, and B+ B—.

The periods of time intervening between the crests and the waves of attention are so diverse that nothing definite can be said concerning them. Under certain circumstances some persons are able to attend to a public discourse for hours at a time, and the minute crests seem to come as often and to be as high at the close of the period as at its beginning. In other instances the attention wave seems to have a gradual descent, and the succeeding crests are lower and lower, and follow each other less frequently.

When the trough of the second wave coincides with the trough of the minute wave, mental efficiency is reduced to a minimum, e. g., A — q. The speaker may forget his part or he may speak on from the familiarity of the part, but with a minimum of efficiency. The hearer will not understand that which is being spoken, but the crest of the second wave which comes soon after may be sufficient to enable him to grasp the general drift of the sentence, and then, when the crest of the second wave and of the minute wave coincide at a later time, the view of the whole may be so complete that the loss sustained by the previous lack of attention may be wiped out and not become known

to the individual at all. It is impossible, however, to eliminate the troughs of the waves, and the speaker and the hearer must alike expect them and make the best of the situation.

THE SENTENCE, OR CLAUSE, AS THE UNIT OF THOUGHT.

The unit of our thinking is not the letter, the syllable, or the word, but is the simple sentence or clause. Each clause or simple sentence is supposed to contain a single thought and to be grasped by a single act of the mind. The verbal expression of a single conception or idea may consume several seconds of time, but we do not sustain a maximum attention to it during the entire time. As we pronounce a sentence our minds may hardly be on it at all, but we may be thinking of the sentences which are to follow, and the sentence which is being pronounced almost "says itself." Likewise, in hearing a discourse we do not hold ourselves to a continuous strain, but we comprehend the sentences by very short pulses of attention, which are followed by periods of comparative rest. As a sentence is pronounced we may give but little attention to it and may not comprehend any of it till the very last word is spoken, and then by a single momentary activity of the mind we get the import of the entire sentence. It may even happen that we do not understand a single word of a spoken sentence till after the following sentence has been commenced, and this later sentence may give the cue to the former, and it may then be grasped by a single pulse of thought.

CONCLUSION.

As has been shown above, the normal wave of attention does not last for more than a few seconds, and to be compelled to attend without a pause longer than this time is exhausting and very unpleasant. Vibrations of attention that are shorter than a full second are likewise displeasing. This psychological law finds its application in the production and rendition of all artistic expressions of thought. Sentences that are long and which require continuous thought to grasp the idea of the whole are exhausting. Sentences that require more than a single pulse of attention seem strained and unnatural. Sentences that are very short seem choppy, and do not have a pleasing effect.

Vocal sounds are produced by exhalation of breath. In ordinary breathing we exhale about twenty times a minute. Sound may be produced during an entire exhalation; or several " breath groups " or " exhalation groups " of sounds may be produced by a single exhalation. It is also easy to extend the length of the exhalation period far in excess of the three seconds which it ordinarily takes. A study of contemporaneous public speakers leads to the conclusion that the best results are secured when the expiration periods are frequently identical with the sentence (or verse in poetry) and when the expiration period lasts for about the three seconds which is the time of normal breathing. James Whitcomb Riley was tested according to psychological methods as he recited his " Old-Fashioned Roses." The poem has thirty-two lines, and as recited by its author it

contains twenty-nine expiration periods. Twenty-two of these expiration periods ended with the end of a line. Each expiration period expressed a single idea and could be grasped at a single pulse of attention. The average time of each expiration period was 3.13 seconds. Here we have the expiration period usually identical with the line of poetry and the time of the enunciation of the line (or expiration period) was well within the time stated as the fluctuation of attention.

With effort the fluctuations of the attention may be prolonged to several seconds, but the task is not a pleasing one. The most pleasing wave for the attention is from a minimum of approximately a single second to a maximum of a very few seconds, although the nature of the discourse and the mental development of the auditors seem to make a difference.

There are many writers who construct their public discourses in such a manner that the sentences seem stilted and involved to many of their audience. There are also many public reciters who divide their sentences by too many expiration pauses and hence give the impression of being nervous, and cause the production to sound choppy and disconnected. In general it may be said that each single sentence requires a "spurt" of the attention, and the presentation must conform to this psychological fact. Every lecturer or entertainer must also expect a gradual rise and fall of the intensity and duration of those recurrent "spurts" of attention, and so must adjust his lecture

to the actual mental limitations of his hearers. By skillful adjustments to the attention waves of the hearers the maximum effect is produced with the minimum of strained attention.

Rhythm.

CHAPTER VIII.

Rhythm.

THE UNIVERSAL SIGNIFICANCE OF RHYTHM.

That which is always before us often escapes our attention. The air is a substance which we do not become conscious of until comparatively late in our development. All motions are vibratory, and yet the fact often escapes us entirely. The annual periodicity of the movement of the earth about the sun gives us our years and seasons. The diurnal movement of the earth upon its axis gives us our night and day. The recurrent movements of the moon divide the year into its months.

These regular recurring periods in the solar system have an untold influence upon the life of all plants and animals. The periodicity of the year, the season, the month and the day are each responsible for certain rhythms discoverable in plants and animals. In certain latitudes vegetation shows annual periods of growth and fruitage, although such periods are not dependent upon frosts, drouths or rainy seasons. The vegetable life seems to require the full year for its complete cycle of growth and rest, and all this in spite of the fact that all seasons are equally favorable to growth. Animal life is as subject to the influences of the year as is vegetable life. The life of most insects is confined to a single year. Birds begin their migrations at the same sea-

son of the year, even though the approach of winter has not necessitated it. The polar bear and other hibernating animals seem to have their life determined by regular annual rhythms, even though their hibernation is not necessary, and though proper preparation for it has not been made.

The monthly rhythm of the moon seems to have influenced vegetation and animals, although the facts are not so apparent as in the case of yearly rhythms. The lunar period seems to influence the blooming of certain flowering plants. There is a species of Chinese rose which blooms monthly during its flowering season. In the animal kingdom the periods of incubation or gestation are one month or some multiple of months. In the case of birds the period of incubation is usually not the full month, but seven days—the fourth of a month—or some multiple of seven days.

The daily rhythm of the earth upon its axis has a powerful effect in producing rhythms in both vegetable and animal organisms. Certain plants have a daily rhythm of growth and rest. They may blossom every morning during their season, but every evening their petals close. In the case of all the higher animals there is each day a period of sleep, and a period of waking. Even in the regions where the duration of day or of night exceeds the ordinary, the waking and sleeping period still is confined to the twenty-four hours.

Rhythm is not confined at all to the celestial bodies, but is found everywhere. Sight is caused by the rhythmical vibrations of ether. Sound is caused by the rhythmical

vibrations of air. Heat and electricity are due to other forms of rhythmic movements. Winds, tides, the flowing of rivers, the falling of bodies and scores of other familiar phenomena all illustrate the rhythmical nature of the universe which we inhabit. The pendular movements of the limbs in walking and running are assumed by some to have been the origin of our consciousness of rhythm. Others, with equal show of reason, have placed it in the rhythmical pulse of the heart. More recent investigations have discovered a closer relationship of rhythm to the attention waves than to any other of the bodily or mental functions. Whatever future scientists may discover, it is at least true that rhythm in one form or another is found throughout the universe, and as man's development depends upon his adjustment to his environment, it is to be expected that all minds will be peculiarly susceptible to the influence of that which pervades and rules in the heavens and the earth, in the mind and the body. This assumption of the susceptibility of minds to rhythm is justified by the observations of all persons who have studied human actions, whether among primitive peoples, children or among civilized adults.

RHYTHM AMONG PRIMITIVE PEOPLES.

Anthropologists furnish us with many interesting descriptions of the customs of the lower races of men in which rhythm plays a very large part in the industrial and social life of the clan and of the individual. It seems common for the uncivilized races to accompany their work with rhythmical movements, and even with some sort of rhyth-

mical melody. In "Harper's Magazine" for 1899, J. S. C. Speedy gives an interesting account of the life of certain barbaric tribes. He tells of the method employed by one tribe in watering their animals. This seems to be a difficult task, as the buckets employed are cumbersome, and it is difficult to handle them without spilling the water as it is passed up from the well. The entire process is accompanied by a simple melody, which has a pronounced rhythm. The following is given as a free English translation:

"O darling cow, come near and drink,—
God is great!
O camel strong, so still and swift,—
God is great!
O lovely goats, so fair and sweet,—
God is great!"

This is repeated over and over again until the beasts are all watered. The singing or chanting is accompanied by the rhythmical movements of passing the bucket on to the next and the rhythm is supposed by observers to be very beneficial in securing accuracy and speed of movements as the water is not spilt and the work goes on rapidly.

It seems to be a very common custom among all the lower races to make frequent use of rhythm in connection with work. By following this rhythmical movement of hands and body the work is made more pleasant and more effective. Some authorities are disposed to assume that the

first manifestation of an appreciation of rhythm is found in connection with work.

Whether or not rhythm is first found adding efficiency and pleasure to work, we soon find it used for more spectacular purposes. The war dance and the beating of drums and cymbals to incite the martial spirit are common to all tribes and peoples. The excitement thus aroused may result in such a frenzy that warriors may set upon and even kill members of the home tribe.

The effect of rhythm is especially manifest in the dance, whether this be the war dance, the dance in honor of some of the gods, or merely a pastime and social amusement. The religious dance not infrequently ends only when the subject falls in a swoon overcome by the emotional paroxysm into which he has worked himself. The result seems to be accomplished by the rhythmic movements made in accompaniment to the simple music which is practically devoid of content, and rests for its potency upon the form of rhythm.

RHYTHM AMONG CHILDREN.

The susceptibility of children to the influence of rhythm has been noted by all careful observers. One author, in commenting upon the subject, had the following to offer ("American Journal of Psychology," January, 1894):

"The effect of rhythm and clearly-accented music is no greater upon primitive peoples than upon children. Although children are not allowed to go into ecstasies, the clapping of the hands in the singing of 'Pease porridge

hot' is akin to the terrible leaping and gesticulations of the savage to the accompanying tom-tom and the chanting of his ancient legends. The child usually begins the recitation of 'Pease porridge hot' rather slowly, and, as he continues, he grows in excitement and enthusiasm, his gestures become more violent and rapid, until he breaks down in the excitement. It is a well-known fact among school teachers that young children become excited whenever they sing rhymes with a strongly-accented rhythm. Several have made this observation during the singing of a certain line in Theodore Tilton's 'Baby Bye.' The line in which the excitement reaches its climax is:

"'There he goes,
On his toes,
Tickling baby's nose.'

This is a type of the fairy measure. The accents are strong, and every line is preceded by a pause, and at the same time all the lines are rhymed. Both the rhyme and the pause lend an intensification to the rhythm that is sufficient to call out the greatest excitement in the 'fairy people.'"

VARIOUS UTILITIES OF RHYTHM.

The use of rhythm is not confined to primitive races and to children.

The peasants of different countries accompany their work with a rhythmical melody, or, in the absence of the melody, they time their movements to a rhythm which is

more or less in their consciousness during all the hours of labor. The hoe, the scythe, the needle and the cradle all are moved with as great regard to rhythm as circumstances will allow.

The proverbial negro philosopher seems to depend more upon the rhythm than upon the content of his discourse to produce the desired emotional effect upon his hearers. The effect which he is able to produce seems comparable to that secured by the employment of rhythm among barbaric tribes.

Many modern evangelists are especially powerful in the use of rhythm in their discourses and the effects produced are out of all proportion to the substance of their sermons. The hymns which they sing have a tremendous swing to them. They insist that all sing lustily, and not infrequently they set the example by keeping time with their feet, as well as by clapping the hands or the hymn book. Swaying of the body in unison with the hymn is not uncommon, and the shouting which used to accompany such employment of rhythm is not more excessive than should be expected when we but think of the effect produced in all ages among simple-minded people by just such use of rhythm.

Sale criers, street hawkers and fakirs ordinarily employ a very pronounced rhythm in their speech, and it is this fact which in part explains the wonderful effect which they are able to produce over a group of sensible persons.

As one form of rhythm is employed to move and excite, so another form may be used to soothe and to rest. The mother instinctively rocks her babe with an appropriate

rhythm capable of producing sleep. The hypnotizer employs rhythmical passes to get possession of his subject.

INVOLUNTARY PRODUCTION OF RHYTHM.

Our nature craves rhythm to such an extent that we produce it in imagination where it does not exist in reality. The form of rhythm which we desire is not that of a uniform series of sounds or movements, but the series must be one of recurrent accents, with intervening sounds or movements which are not accented. It frequently happens that the alternate clicks of a clock are unequal as to duration and intensity. Even when the ticks are uniform, we group them into well-known forms of rhythm, such as the anapest, the trochee, and the dactyl. It is also possible to place the accent on every fourth tick, but in such cases there is likely to be a secondary accent on the second tick, followed by a fuller accent on the fourth one. There may be an entirely different grouping of the four ticks, e. g., a primary accent on the first tick and a secondary accent on the third one. It is possible to divide the ticks into groups of five, in which the primary accent comes on every fifth tick, and with a secondary accent on one or the other of the group.

The beats of a metronome are frequently heard in rhythmical groups, the same as the ticks of the clock. The regular puffs of a railroad engine are grouped into rhythmical units by most persons. This method of grouping is subject to individual peculiarities, but for the same individual is quite constant.

There is a very decided tendency to swing our arms or to walk, not in monotonous identical movements, but according to a rhythmical measure in which either the right or the left member marks the accent. In marching this is especially conspicuous, and the time is marked by alternating steps.

THE ÆSTHETIC DELIGHT IN RHYTHM.

Our inherent desire for rhythm is the source of our music, dances and poetry, and its influence is most marked in all forms of public speech and dramatic representation.

There is no one who is not pleased by certain colors and displeased by others. Red and blue are quite universally pleasing. Certain shades of green and yellow are displeasing to most persons. The effect of the color may be present, although the subject pays no special attention to it. Every color and every combination of colors has its peculiar emotional effect. A world without color would be a dreary place, and a person deprived of the pleasure of color loses much of the pleasure of life.

We have an instinctive preference for certain geometrical forms. A perfect square is pleasing, but a rectangle whose height is to its base as 1 : 1.618 is more pleasing. A perpendicular line divided in the centre is less pleasing than a line divided in the same proportion as that mentioned in connection with the rectangle, and which is known as the golden mean of architecture.

In tones there are harmonies and discords. Some tones are more pleasing than others. Some combinations of

tones are pleasing and others displeasing. The tones produced by different instruments differ as to their emotional effects. Some soothe and some excite because of the peculiar quality of the tone and not because of its time or rhythm.

The æsthetic pleasure arising from the perception and production of rhythm is similar to that produced by pleasing colors, forms and tones. We may not be aware of the fact that these influences are present and yet the result does follow. We may be delighted because of the color of a picture, a sunset, or the decorations of a home, and yet not recognize the element of color at all. We may admire the symmetry and harmony of a building without recognizing the golden mean of architecture and without being aware of the fact that certain forms please and others displease. Each musical instrument produces its own tone, and the different effects which different instruments have upon us is well recognized by all experts, although the common man knows nothing of the distinction between the instruments in their effects upon him. Likewise with rhythm, we are moved by it when we are not aware of its presence. We may be so under the influence of the rhythm of voice or instrument that our bodies sway in sympathetic movements and our emotions are excited to their utmost, and yet we may not be aware of the fact that all this remarkable effect is produced by the rhythm employed by the performer whether he be musician, actor or speaker. The æsthetic effect produced by rhythmical speech is so important that it

should receive the serious consideration of every public speaker.

RHYTHM ASSISTS THINKING.

The æsthetic effect is thus the primary function of rhythm in public speech. The second function, which is almost equal to the first in importance, is that it enables the hearers to grasp the thought with greater ease. Every accent of a rhythm is a spur to the attention. This is especially true in the case of the primary accent of a group composed of several accented and unaccented syllables. In keeping time with rhythm our muscles contract with the accented and relax with the unaccented part of the foot or line. This contraction of the muscles is an influence beneficial in producing a rise of the attention. Our attention is best employed when periods of activity are followed by periods of rest. A too constant tax upon the attention exhausts it and produces inattention. Too few appeals for attention allow it time to become distracted and to be turned towards something else. The effect of rhythm when it is properly regulated is to make just the right frequency of appeals, and hence the results are highly satisfactory.

A proper rhythm not only catches and holds the attention, but it also assists the hearer to comprehend what is being said by presenting it to him in "thought groups." If the unit of thought were the word, then a proper delivery would place an emphasis on each word. But since the unit of thought is not the word, but the phrase or the complete

sentence, the accentuation must bring out this fact and assist the mind of the hearer in discovering the gist of the thought and in comprehending it. Here we have unity in diversity, as a group of different particular sounds are grouped together to express a single idea. It relieves the hearer of the unpleasant task of having to attend to words as words, but presents the diversity of oral sounds in a unity which expresses the single conception.

The present chapter has been devoted to the single purpose of emphasizing the significance of rhythm in the universe in general and in public speaking in particular. The next chapter will continue the discussion and will show how rhythm may be profitably employed in public speaking, and will present illustrations of the method employed by skillful writers and speakers to secure rhythmic results.

Rhythm in Written and Oral Discourse.

CHAPTER IX.

Rhythm in Written and Oral Discourse.

SENTENCE RHYTHM.

All experienced writers and speakers manifest a personal peculiarity in the rhythm of their sentences. The writer indicates this by the recurrent lengths of his sentences and the speaker by his interpretation. Most of us are unaware of the fact that we have a normal length of sentences and that we retain this length when possible. Recent investigators have discovered this fact, and the evidence is indisputable. The successive sentences admit of variations, but the average length of sentences of any ordinary author is claimed to be ascertainable from the reading of any five hundred lines of his typical works. Professor L. A. Sherman ("University Studies," University of Nebraska, Vol. i., No. 4) presents the following illustrative data taken from Macaulay's "History of England." The entries are the average number of words per sentence in the consecutive thousands of sentences and the footings are the averages of the consecutive tens of thousands:

26.09	23.00	22.21	20.50
24.21	25.53	25.06	25.01
24.20	21.76	22.33	24.97
23.51	21.59	24.81	22.92
24.99	24.10	24.05	23.71
22.13	19.62	21.81	23.26
22.36	21.11	23.39	22.81
20.85	25.58	22.39	23.91
21.08	25.06	23.17	24.92
23.81	23.81	24.03	25.28
23.33	23.18	23.32	23.73

These data show a wonderful uniformity as to the average number of words in each sentence when the sentences are grouped into thousands, and the uniformity which holds for the tens of thousands is most astounding. The average number of words in the sentences of the entire History of England is 23.43 words.

An interesting and instructive thing in connection with this sentence rhythm is its development in English literature in the succeeding centuries. Before the Elizabethan age the number of words to a sentence averaged approximately fifty. To-day our authors limit their sentences to an average of about twenty-five. There are, of course, great personal differences, but twenty-five seems to be about the average length. Lincoln's Gettysburg oration averaged twenty-six words to the sentence. Bryan's famous address on free silver, delivered at the Chicago convention, averaged twenty-eight words to the sentence.

SENTENCE RHYTHM DEPENDENT ON PREDICATIONS.

The sentence rhythm does not seem to depend primarily upon the absolute number of words in the sentences, but upon the number of complete predications within the sentences. The frequency of the recurrence of simple sentences is also important. This fact has been clearly set forth by G. W. Gerwing ("University Studies," University of Nebraska, Vol. ii., No. 1), and, among other data, those secured from Macaulay's "History of England" are presented. These volumes were tabulated, each thousand sentences was taken as a group and the average number of

complete predications per sentence, as well as the percentage of simple sentences were recorded. The following entries were secured by dividing the work into groups of one thousand complete sentences each, then, by finding the average number of complete predications in each sentence of the group (the three-figured columns), and the per cent. that the simple sentences were of the total number of sentences in the group (the two-figured columns):

2.28	37%	2.42	31%	2.35	33%	2.35	33%
2.29	38	2.34	35	2.33	32	2.35	32
2.24	37	2.12	39	2.31	30	2.31	34
2.22	36	2.40	33	2.34	32	2.47	31
2.12	41	2.17	37	2.28	35	2.30	25
2.17	35	2.18	37	2.28	35	2.30	35
2.30	34	2.37	34	2.39	30	2.32	34
2.18	34	2.53	31	2.31	37	2.37	34
2.31	34	2.36	33	2.55	28	2.38	34
2.24	37	2.26	33	2.19	37	2.31	35
2.24	36	2.32	34	2.33	33	2.35	34

The average predications of each sentence for the complete History of England was 2.30, and there was an average of 34 simple sentences to each hundred sentences.

COMPARISON OF ANCIENT AND MODERN SENTENCE RHYTHM.

A comparison between the structure of the sentences as employed by ancient and modern writers shows that there has been a very decided tendency towards the employment of simple sentences and towards few predications in the sin-

gle sentence. The sentence rhythm holds for the modern writer and speaker as it did for those of former times, but the rhythm is composed of shorter units and less involved ones. Demosthenes, in his oration on "The Crown," makes frequent use of highly-involved sentences which contain upward of sixty words. Cicero, in his oration, "For the Poet Archias," used a single sentence of 124 words.

Sentences are supposed to be the expression of a complete thought. As such there has been a growing reduction of the length of sentences to conform their lengths to the actual units of thought. It may be that there are those who feel our modern sentences to be staccato and disagreeable as they are recited, but most of us appreciate the modern sentence rhythm and dislike the more involved and heavy rhythm of former writers and speakers. A man who desires the best form of sentences for modern audiences should avoid sentences which to many ears seem clumsy, and should also eschew the opposite extreme, else on the one hand he will exhaust and on the other he will disgust.

The sentence rhythm is very pronounced in many of our contemporaneous lecturers. With some the sentence is short, and every brief period of expectation is followed by its appropriate satisfaction. The effect produced is quite similar to that produced by the verse and stanza in poetry or music. As illustrations of this sort of discourse it is but necessary to mention the addresses of such well-known lecturers as Newell Dwight Hillis, Frank M. Bristol, Henry Watterson, Robert McIntyre, George R. Wendling and Frank W. Gunsaulus.

There are others of our contemporaneous writers and speakers who do not take advantage of this sentence rhythm, but rely upon other features to produce the desired effect upon their audiences. The most successful of these is, no doubt, the Rev. Sam P. Jones, whose epigrammatic sentences are spoken at irregular and uncertain intervals.

RHYTHM AS RELATED TO TIME, PITCH AND STRESS.

Scores of writers on "Elocution," "Vocal Expression," "Rhetoric," etc., have discoursed at length upon the nature of rhythm as it depends upon the more minute structure of the sentence. With but few exceptions, all agree that the rhythm depends upon the relation of emphasized to unemphasized parts of the discourse. The emphasis may be said to be due to stress, force, pitch, tone, duration, time, quantity, quality, rhyme, alliteration, sense, etc., etc. The rhythm of prose is frequently considered as of the same in quality as that of poetry or music, but of less in quantity. The greatest influence is probably exerted by three schools of authors who agree in making the rhythm of spoken discourse to be alike in both prose and poetry. One of the schools teaches that the rhythm is due to the accented and unaccented syllables occurring at regular intervals of *time*. The second school teaches that the rhythm depends upon the recurrent periods of accented and unaccented syllables, and that the accent of rhythm is identical with *pitch*. The third school teaches that the *stress* or *loudness* placed on

regularly-recurring syllables is the fundamental thing in rhythm.

Until recently there seemed to have been no method of deciding the dispute. Each school had its masterly readers who were able to place the accent according to their respective theories and to produce results that were conclusive for their hearers. One school would recommend its pupils to pay special attention to the time, the second would drill upon pitch and the third upon stress. Each school regarded one element as of primary importance and the other two as secondary.

Representatives of the three schools might listen to the same rendition at the same time. One would hear the rhythm in the time, another in the pitch and the third in the stress. The analysis was too difficult for the unassisted ear. Fortunately, the exact methods of scientific research have been brought to bear at this point, and now we can discover the method which any speaker actually uses in producing the accented and unaccented parts of the discourse on which the rhythm depends.

PHONOGRAPHIC RECORDS SETTLE A DISPUTE.

Phonographic records of many of our contemporaneous speakers have been secured in abundance. These records have been carefully studied and the elements of time, pitch and loudness accurately determined. A recent study of this sort ("Studies from the Yale Psychological Laboratory," Vol. ix) has supplied us with most trustworthy data. In

this study there is presented the exact method employed by eight different readers to produce accent. (Accent is here used as synonymous with the loud, long, stressed, accented, emphatic or centroid syllable.) The readings were in part prose and in part poetry. The measurement as presented here is confined to 513 accents. The methods used by the eight readers for producing the 513 accents are grouped in the following table:

288 loudness, duration and pitch
59 loudness alone
55 duration alone
52 loudness and pitch
31 loudness and duration
16 pitch alone
12 duration and pitch.

It will be seen from the foregoing table that loudness, duration and pitch are all three used in most cases to produce the accent. Of the three elements loudness is employed either alone or in combination all but 83 times. Furthermore, even in combination the loudness or stress was the most prominent factor. It should be noticed, however, that each of the three elements of time, pitch and stress was used alone, and in every possible combination. The original data show that the most pronounced accents were usually made not by the union of all three factors, but by a combination of two of them. The combination of the three factors is employed most frequently, but when a special emphasis is desired one or two of the three factors

disappears. A syllable or word which is expressed by a change of pitch and of loudness is more strongly emphasized than it would be if the time were also increased or decreased.

AS TOLD BY THE PHONOGRAPHIC RECORD.

To add clearness to the discussion of the elements of time, pitch and stress (loudness) in vocal expression, we will present here the results employed by James Whitcomb Riley in reading his "Old-Fashioned Roses." For purposes of perspicuity the following symbols are used: d stands for duration, l for loudness, p for pitch, l-p for loudness and pitch, d-l for duration and loudness, p-d for pitch and duration, III for duration, loudness and pitch. These symbols will be found directly over the accented syllables. At a glance the reader can see how each accent was produced. Figures above the line represent the hundredths of a second between the accents (same as accented and unaccented syllables of the foot); figures below a dash drawn in the line indicate the hundredths of second pause. All these data are deduced from the results secured in the Yale Psychological Laboratory:

	III	85	p-d	60	III	62	
They	ain't	no	style	about		'em,—	
							18
p	64		III	62	d-l	93	d-l 139
And	they	're	sort	o'	pale	and	faded:—
							93
III	64	d-l	87	III	51	III	57
Yit	the	doorway		here,	without	'em,—	
							20

III 60 d-l 180 III 45
Would be lonesomer, — and shaded
85
III 38 III 66 d-l 62 d-l 45
With a good 'eal blacker shadder
III 47 d 57 d-l 57 l-p 104
Than the mornin' glories makes,—
85
III 64 d-l 93 III 76 d-l 83
And the sunshine would look sadder
III 81 l 78 l 70 III
For their good old fashioned sakes.—
139
III 89 III 76 III 57
I like 'em 'cause they kind o'
III 47 III 53 III 41 III 156
Sort o' make a feller like 'em:—
85
d-l 41 d-l 32 d 41 III 45 III 70
And I tell you, when I find a
III 87 III 62 III 81 III 145
Bunch out whur the sun kin strike 'em,—
III 76 III 83 III 47
It allus sets me thinkin'
III 38 d-l 91 d 91 III 89
O' the ones 'at used to grow,
III 43 l 47 III 64 III 45
And peek in thro' the chinkin'
III 47 III 51 III 51 III
O' the cabin ,— don't you know,—
135
d-l 74 III 53 p-l 133
And then I think o' mother,—
83
p 36 p-l 41 d 57 III 110
And how she used to love 'em,—
68
III 49 p-l 87 p 110
When there wuzn't any other,—
83
III 76 III 55 III 49 p 162
'Less she found 'em up above ('em)!—
110

III 83 d 89 III 72 III 120
And her eyes, afore she shut 'em,—
91
III 62 III 68 d-p 95 III 45
Whispered with a smile, and said—
16
III 70 III 53 l 114 l 38
We must pick a bunch — and put 'em
49
III 55 III 154 III 66 III
In her hand — when she was dead,—
76
14
III 41 III 49 d-l 116
But, as I was a saying,—
24
III 91 l 66 III 70
They ain't — no style about 'em—
16
38
d 60 d 114 d 62 III 151
Very gaudy or displayin',—
110
p-l 70 l 41 III 55 III 124
Yet I wouldn't be without 'em,
85
III 91 l 68 p 91 l 112
'Cause I'm happier in these posies,—
57
III 45 III 118 III 100
(And the) hollyhawks — and sich,—
30 81
III 51 III 43 III 78 d-l 74
Than the hummin' bird ,— 'at noses
30
III 53 d 102 p
In the roses of the rich.

This record shows that Mr. Riley employed freely the three methods of time, pitch and loudness. He employed them in the following order of frequency:

72 loudness, time and pitch	6 pitch
16 loudness and duration	5 loudness and pitch
9 loudness	1 duration and pitch.
9 duration	

All who have heard Mr. Riley read this selection know that it possesses a rhythm, yet it is certainly evident to any one who glances at the record that neither the poetical feet nor the lines occupy the same amount of time. In fact, the diversity of times given to the different feet and lines is so great that if the rhythm of speech were dependent upon an identity as to the time of recurring feet and lines there would be no rhythm in such rendition as this.

CONCLUSION.

The natural conclusion to such considerations is that the rhythm of speech depends upon something much less mechanical than any one of the three elements under discussion. One or more of these three elements is present in every recurrence of accent, and it is safe to assume that they are an integral part of the rhythm and that they should be employed by all public speakers with great consideration.

In English prose and poetry the thought is of the most importance and the form of expression is but secondary. In chanting and in music the thought is subordinated to the form, and in these forms of expression the rhythm is much more prominent than in prose or poetry. It is æsthetically displeasing to have too much made of rhythm in reading prose and poetry, but the highest manifestations of art are present when the rhythmical form is used to express the thought. We do not like to have that which is most important subordinated to the less important, but our æsthetic

natures crave rhythm, and when the best expression of thought coincides with the production of rhythm, we respond at once with enthusiastic approval.

Many of the discussions upon rhythm in public discourse have been mere theories, unsupported by scientific research. Some authors have advocated an abandonment of every attempt to produce rhythm in the rendition of either prose or poetry. Other authors have assured us that our reading was fallacious unless each foot of a poem occupied the same amount of time as every other foot. Some authors have assured us that rhythm is dependent upon one single element, e. g., time, stress or pitch; other authors have convinced us that each of these contentions is untrue.

This chapter has been confined to a statement of facts as to the exact methods used by readers and writers to produce rhythm, and to certain psychological presumptions in favor of rendering both prose and poetry rhythmically.

Suggestion.

CHAPTER X.

Suggestion.

HYPNOTISM DESCRIBED.

The subject of suggestion cannot be satisfactorily discussed without a consideration of hypnotism, because it is here alone that suggestion is fully manifested. In presenting these phenomena to my classes in psychology two or three of the men of the class are seated on the platform in the front of the amphitheater and hypnotized. The method employed to secure hypnosis is the well-known method used by Bernheim, the school of Nancy, France. During the preliminary explanation and during the process of hypnotization great care is taken that nothing shall be said or done to cause subjects to become frightened or excited. The facts of hypnotism are carefully explained, and then the subjects are asked to concentrate their attention on some object, or else to think of nothing but sleep. They are told that their limbs are getting heavy, that they are perfectly relaxed and at rest, and that they are getting more and more sleepy every minute. By treating each subject after this general plan, but as his case demands, hypnosis is secured in a very few minutes. The hand of one of the hypnotized subjects is taken and moved gently in a circle, and he is told that his hand is thus moving, and that he cannot possibly stop it. The subject stands (or sits) and

moves his hand and is not able to stop it until he is told that his hand is stopping—that it has stopped.

Another subject, e. g., John Smith, is told that his name is not John Smith, but that it is Frank Jones. This statement is repeated several times and in a firm tone. The subject is then asked what his name is, and, if the stage of hypnosis is sufficient, he will, after a little delay, answer that his name is Frank Jones. No further reference is made to this till a later time, and then, if John Smith is asked to write his name, he will sign it as Frank Jones. The writing of this new name is usually done in a manner which indicates doubt and confusion on the part of the subject, but the results may under proper conditions be secured.

Another subject is told that the university band is marching up the street, and he is told to listen to it. If asked, he affirms that he hears it with perfect distinctness. If he is told that the band is playing any particular tune, he hears that tune. If he is told that it really is not the band at all, but that it is a robin singing in a near-by tree, he then changes his mind and agrees with the statement that it is a robin.

The members of my classes who are annually chosen for demonstration are always strong men of more than average ability, who would not be classed as "suggestible," and, ordinarily, who have never been previously hypnotized.

SUGGESTION WITHOUT HYPNOTISM.

Experiments have been made without the use of hypnotism upon peculiarly suggestible subjects, and results se-

cured comparable to those described above. Thus one investigator writes: "Mr. W., an acquaintance of mine, who was never hypnotized by any one, readily took suggestions in his waking state. I told him he could not write his name. He tried, and he did write it. I stretched out my arm, opened my hand and stiffened the fingers, and said, 'Try now.' He could not write; his hand became cataleptic. I made a whole series of experiments of this kind. . . . Meanwhile this one instance will suffice for our present purpose to show the power of suggestion in the waking state" (Dr. Boris Sidis, "The Psychology of Suggestion.")

Shakespeare recognized the force of suggestion in writing the following dialogue between Hamlet and Polonius:

"HAM. Do you see yonder cloud, that's almost in shape of a camel?

"POL. By the mass, and 'tis like a camel, indeed.

"HAM. Methinks it is like a weasel.

"POL. It is back'd like a weasel.

"HAM. Or like a whale.

"POL. Very like a whale."

This instance cited from Shakespeare is easily equaled by actual experience. When discussing with my class the sensibility to odor, the stopper was removed from a perfumery bottle, and the students were asked to raise their hands as soon as they detected the odor. The last time this was tried with my class, one very suggestible girl sitting near soon raised her hand, and many others soon followed. They were sure that they smelled it and recognized the odor as

that of violet (the wrapper indicated that it was violet). The fact was that the bottle contained nothing but distilled water, and so could have no odor at all.

All the instances cited above are presented to illustrate the working of suggestion in hypnotism and in extreme cases of suggestibility. The fact that they are extreme cases is not significant except that by the consideration of such cases we can best understand the nature of suggestion.

TWO CHARACTERISTICS OF SUGGESTION.

Scientific studies of the subject of suggestion were not undertaken till recent years. The phenomena are of such a multiform character and are clothed in such diverse appearances that as yet there is no fixed usage as to the exact limitation which shall be put upon the use of the term. The most recent writers upon the subject display a certain amount of uniformity in confining the term to actions which are marked by two characteristics: *First, the thought or action must be suggested by some external stimulus.* This external stimulus may be a spoken sentence, a gesture, a look, a ringing of a bell, the sight of an object, etc., etc. If I perform an action or come to a conclusion as the result of a process of reasoning, the conclusion or action is not suggested. If I am allowing my mind to wander and suddenly one idea calls up another, I would not say that one idea suggested the other, but rather that it called it up. *The second characteristic of suggestion is that the idea suggested results in action or belief without the ordinary amount of deliberation or criti-*

cism. There is a narrowing of consciousness and the idea suggested does not arouse any, or at least an adequate amount of, resistance.

In the examples cited above the hypnotized subject had the idea of "hand moving in a circle" suggested to him by spoken words and by the action of the hypnotizer. (It might have been done by telephone or by letter.) And the idea so dominated his consciousness that the idea of stopping the movement could not arise in his consciousness. The subject who believed that his name was Frank Jones had this idea suggested by the word of the hypnotizer, and his consciousness had been so narrowed that it did not admit of the entrance of the competing idea that his name was not actually that. The hypnotized subject who believed that he heard the band playing had the idea suggested to him, and the thought occupied his mind so completely that no feeling of unreality could possibly occur to him. The same explanation holds for the extreme cases of suggestibility without hypnotism.

LAW OF SUGGESTION.

The full importance of the subject of suggestion cannot be grasped without holding in mind two fundamental facts in connection with our mental processes. The first fact is that mind is in its very nature impulsive and naturally leads to action. The view has been erroneously held by some that to secure action the will has first to be convinced, and only after that has taken place may the idea of any particular action be executed by the fiat of the will. The present con-

ception is that to secure action all that is necessary is to suggest the idea of the action in such a way that no competing or inhibiting idea arises, and then the idea of action will of itself lead to action. This is formulated in the so-called law of suggestion, which is of prime importance for an understanding of the working of the human mind: *Every idea of an action* (or function) *will result in that action unless hindered by a competing idea or physical impediment.* The idea of "hand moving in a circle" led naturally to the corresponding movement of the hand, because it was not hindered by a competing idea or physical impediment. If I should at this moment think of pulling my right ear with my left hand I would of necessity perform the act at once, if it were not for the fact that with the idea there comes an accompanying idea of how foolish it would be to stop my writing at this point. Even the inhibiting idea is usually not sufficient to stop all incipient movements. If I try to think of pronouncing the letter "o," keeping clearly in mind the inhibiting idea that I am actually not to do it, I still find that the muscles at the base of my tongue quiver with the incipient movements of the pronunciation. The same is true with my lips if I think of pronouncing the letter "p," "q," etc.

The second fundamental fact of the human mind referred to above is this. *Every idea that is suggested to the mind is held as truth, unless inhibited by some contradictory idea.* A conclusion which is suggested is accepted as valid unless the idea of a possible alternative is called up at the same time. If the idea is suggested to me that I smell the odor of violets, and if I am filled with this idea alone, I will have

an hallucination of smelling violets, when in reality none are present. This fact leads to some astounding consequences with persons under hypnotism or with highly suggestible natures. The extreme cases are of value to us only in so far as they make clear that which is common to all persons, but in lesser degrees.

The fact of suggestion in normal persons has ceased to be doubted, and now we are beginning to realize the importance of the subject for every one who would understand the action of the human mind and who would attempt to influence it as every public speaker does.

MAN OTHER THAN A LOGICAL MACHINE.

The writers of formal logic seem to assume that man is but a logical machine, that he weighs evidence, formulates it into the syllogistic order and then reaches the conclusions on which he bases his actions. The more modern conception of man is that he is a creature who rarely reasons at all. Indeed, one of the greatest students of the human mind assures us that most persons never perform an act of pure reasoning, but that all their actions are the results of imitation, habit, suggestion or some related form of thinking which is distinctly below that which could be called reasoning. Our most important actions are performed and our most sacred conceptions are reached by means of the merest suggestion. Great commanders of men are not those who are best skilled in reasoning with their subordinates. The greatest inspirers of men are not those who are most logical in presenting their truths to the multitude. Even our great-

est debaters are not those who are most logical in presenting the arguments in favor of their side of the question. *In moving and inspiring men suggestion is to be considered as in every way the equal of logical reasoning,* and as such is to be made the object of consideration for every man who is interested in moving his fellows.

PRACTICAL APPLICATION.

If suggestion is such a potent factor in influencing the minds of men, the question that naturally arises is, What use can the public speaker make of suggestion? The answer to this question would of necessity conform to the two essential characteristics of suggestion as presented above. The first characteristic (the suggestion must come from some external source, such as a spoken word, etc.) is met by all forms of public speech. The external source of the suggestion is the voice, gesture, facial expression, etc. The force of the suggestion may depend on one of these factors rather than on others. Certain methods of using these means are certainly more effective than others, but at the present time it is not proposed to discuss these points.

The answer to our question as to the possible use of suggestion in public speech depends primarily upon the second characteristic of suggestion, i. e., that of limiting the consciousness of the minds of the hearers to the idea suggested and the avoidance of ideas in their minds which invalidate or hinder the ideas suggested. The hypnotizer produces perfect conviction by everything he says, for no contradictory or inhibiting ideas arise in the mind of the subject.

The public speaker produces conviction only to the extent that he hinders the awakening of these same contradictory ideas or to the extent that he allays them after they have arisen. The simplest way is, of course, to put the suggestion in such a way that the undesirable ideas are not awakened at all. How can this be done? It is not to be assumed that any one has been or ever will be able to answer this question completely for all cases. In hypnotism the complete answer is found. In highly suggestible persons and under favorable circumstances a suggestion may be given which awakens no inhibiting idea, and in such instances the acts and thoughts of the subject are at the mercy of the suggester.

Probably no orator ever hypnotized his entire audience and never had them all completely under his control, even so far as the ideas were concerned which he was suggesting, but certainly there are well-attested cases of close approximation to such a condition.

DEVICES HELPFUL TO THE SPEAKER WHILE BEFORE HIS AUDIENCE.

It is easier to keep inhibiting ideas from arising in the mind of the audience than it is to allay them after they have arisen. Ordinarily it is to the best interest of the public speaker to present his ideas in such a manner that a minimum of inhibiting ideas will be aroused, and so the question really comes to this, What are the possible methods available to the public speaker by which he can keep down inhibiting ideas in his audience?

Rendering an Audience Suggestible.

CHAPTER XI.

Rendering an Audience Suggestible.

There are devices available for public speakers by means of which audiences are made suggestible, i. e., are rendered uncritical and accept unhesitatingly almost any conclusion or conception which is presented to their minds. The following-named devices or methods for inducing suggestibility are not assumed to be all, but they are at least valuable ones, and are those which are to be found embodied in the great oratorical masterpieces, and also in great oratorical successes, even though the speaker and the address are not brilliant.

SECURING THE CONFIDENCE OF THE AUDIENCE.

The first method is that of avoiding suspicion or securing the confidence of the audience. The presence of suspicion renders all approximation to suggestion impossible, for the subject is not only critical, but is hypercritical of every idea presented. There is no confidence felt in the conclusions or conceptions affirmed, and no tendency to follow out the actions proposed. There are some persons who by their very presence beget confidence, and others lack this power, and are never able to acquire it. An analysis of many of the world's great orations will reveal a studied attempt on the part of the orator to win the confidence of the audience before the purpose of the address is revealed. Thus, in the introduction of

his most famous speech, Bryan banishes all suspicion and secures the confidence of his hearers in the following manner:

"I would be presumptuous, indeed, to present myself against the distinguished gentleman to whom you have listened if this were a mere measuring of abilities; but this is not a contest between persons. The humblest citizen in all the land, when clad in the armor of a righteous cause, is stronger than all the hosts of error. I come to you to speak in defence of a cause as holy as the cause of liberty—the cause of humanity."—Speech concluding debate on the Chicago Platform.

In a similar manner Mark Antony banished suspicion and secured the confidence of the Roman populace:

"I come not, friends, to steal away your hearts:
I am no orator, as Brutus is,
But, as you know me all, a plain, blunt man,
That love my friend; and that they know full well
That gave me public leave to speak of him.
For I have neither wit, nor words, nor worth,
Action, nor utterance, nor the power of speech,
To stir men's blood: I only speak right on:
I tell you that, which you yourself do know,
Show you sweet Cæsar's wounds, poor, poor, dumb mouths
And bid them speak for me; but were I Brutus," etc.

SUGGESTIBILITY INDUCED BY AUTHORITY.

The second device to be mentioned is that of AUTHORITY, and is one that appears to be a contradiction of the first, but is in reality supplementary to it. A man who is regarded by

his audience as one speaking with authority presents his ideas, and they are accepted without question, and in so far as they fail to awaken a due amount of questioning and criticism we have an example of suggestion. His conclusions are accepted as valid and his proposed lines of action are carried out without any hesitation or criticism by those for whom he stands as absolute authority.

In order that a speaker may have a maximum effect upon his audience, his coming should be well heralded in advance. He should be looked upon as the man who is leading his fellows in the subject upon which he is to speak. Formality also has a part in spreading the mantle of authority over a speaker. The influence of the court trappings upon the populace of a monarchy is a fact with meaning. The word of the president is enforced by his office. The decrees of the court are made more significant by the grandeur of the costume of the judge and the formality of the delivery. The monk has his every word strengthened by his cap and gown. The minister feels that all he says has added weight because it is delivered from the sacred desk, even when the special costume is not retained. The speaker usually finds that his words have more power when he is introduced to his audience in a dignified way, and when his costume and appearance are such that the respect, if not the awe, of the audience is thereby enhanced.

REPETITION AND SUGGESTION.

The third method to be mentioned of securing suggestibility is that of repetition. An idea which upon its first pre-

sentation does not meet with acceptance may be more acceptable upon its second and third presentation. An advertisement which upon its first appearance is barren of results may by the mere fact of its frequent reappearance convince the public and lead to the desired action. This fact is so well recognized by business men that they do not expect success to follow until the advertisement has been repeated by inserting it in different publications, and even in succeeding issues of the same publications.

The efficiency of repetition in strengthening suggestion is the scientific explanation of one of our common "practical jokes." As a young man enters his place of employment, one after another of his companions accosts him and says, "Why, how pale you are looking this morning! You ought to go home and go to bed, for you certainly are sick." The young man thus addressed by his numerous companions, frequently leaves his desk before the morning is over, and feels compelled to go to bed. The repetition of the same idea by the concerted action of a large number in such cases gives such force to the idea that it becomes irresistible.

Mr. Dooley expressed the significance of repetition when he said, "I belave annything at all, if ye only tell it to me often enough."

Likewise in public speaking there are many ideas which have to be repeated over and over again before they attain their maximum effect. The climactic arrangement is not at all inconsistent with the principle of repetition, but simply implies that the same idea must be presented in successive

stages of development and that the last presentation shall be the fullest and most complete of all.

FIGURES OF SPEECH AND SUGGESTION.

The fourth method to be presented for inducing suggestibility is the use of figures of speech, by means of which the conception or conclusion may be presented in such a suggestive way that it disarms opposition. Of all the figures of speech that may be thus used the most effective seems to be the metaphor. Mr. Bryan is a master in this use of figures of speech. The conclusion which he desires to have the audience reach is not asserted directly, and hence does not call for opposition or criticism. Nevertheless, the conclusion is as certainly affirmed as if it had been expressed in literal terms. The two following extracts from his speech concluding the debate on the Chicago platform will make this point clear:

"But note the change. Mr. McKinley was nominated at St. Louis upon a platform which declared for the maintenance of the gold standard until it can be changed into bimetalism by international agreement. Mr. McKinley was the most popular man among the Republicans, and three months ago everybody in the Republican party prophesied his election. How is it to-day? Why, the man who was once pleased to think that he looked like Napoleon—that man shudders to-day when he remembers that he was nominated upon the anniversary of the battle of Waterloo. Not only that, but as he listens he can hear with ever-increasing distinctness

the sound of the waves as they beat upon the lonely shores of St. Helena."

Mr. Bryan did not assert that Mr. McKinley was doomed to certain defeat and that he had already become conscious of his impending fate. He expressed the conclusion in a more forceful way because of the figurative language by means of which he suggested these same conclusions. Perhaps his most famous use of figurative language is found in the conclusion of the address which is referred to above.

"If they dare to come out into the open field and defend the gold standard as a good thing, we will fight them to the utmost. Having behind us the producing masses of this nation and the world, supported by the commercial interests, the laboring interests and the toilers everywhere, we will answer their demand for a gold standard by saying to them, You shall not press down upon the brow of labor this crown of thorns; you shall not crucify mankind upon a cross of gold."

Mr. Bryan did not assert directly that the gold standard was a crucifixion of the laboring classes. He did not directly assert a likeness between the Silver Democrats and Jesus Christ. Such assertions would have been scorned by his hearers, but when he had completed this sentence the thousands of hearers burst into almost unprecedented applause.

INDIRECT SUGGESTION.

The last method to be mentioned for inducing suggestibility is one of great importance, is much like the last method mentioned, and for want of a better term may be called In-

DIRECT SUGGESTION. By this is meant the process by which a speaker suggests the conclusion or action in an indirect way and so leads the hearer to come to the desired conclusion before it is expressed by the speaker, and when the point is asserted the hearer receives it as a confirmation of the conclusion which he had already formed in his own mind. A conclusion or impression thus formed meets with no opposition, is received uncritically, and is a most powerful form of suggestion. It is not employed by all the great orators, and it may indeed be regarded as a difficult task to make it effective, but when employed wisely it is so successful that it is worthy of careful consideration.

One of the best illustrations of this method of indirect suggestion is found in Mark Antony's address over the body of Julius Cæsar. In this address Mark Antony desired to have the populace come to a particular conclusion and to pursue a definite line of action. He was not allowed to express this conclusion or to advise the action, but in an indirect way he accomplished both and with astounding success. The following quotation from this address will illustrate the point:

"*Ant.* Friends, Romans, countrymen, lend me your ears;
I come to bury Cæsar, not to praise him.
The evil that men do lives after them,
The good is oft interred with their bones:
So let it be with Cæsar. The noble Brutus
Hath told you, Cæsar was ambitious;
If it were so, it was a grievous fault,
And grievously hath Cæsar answer'd it.
Here, under leave of Brutus and the rest,

(For Brutus is an honorable man,
So are they all honorable men),
Come I to speak in Cæsar's funeral.
He was my friend, faithful and just to me;
But Brutus says, he was ambitious;
And Brutus is an honorable man.
He hath brought many captives home to Rome,
Whose ransoms did the general coffers fill.
Did this in Cæsar seem ambitious?
When the poor have cried, Cæsar hath wept;
Ambition should be made of sterner stuff;
Yet Brutus says, he was ambitious;
And Brutus is an honorable man.
You all did see that on the Lupercal
I thrice presented him a kingly crown,
Which he did thrice refuse. Was that ambition?
Yet Brutus says, he was ambitious;
And, sure, he is an honorable man.
I speak not to disprove what Brutus spoke,
But here I am to speak what I do know.
You all did love him once, not without cause;
What cause withholds you, then, to mourn for him?
O judgment! thou art fled to brutish beasts,
And men have lost their reason.—Bear with me;
My heart is in the coffin there with Cæsar,
And I must pause till it come back to me.

"*First Cit.* Methinks there is much reason in his sayings.

"*Second Cit.* If thou consider rightly of the matter,
Cæsar hath had great wrong.

"*Third Cit.* Has he, masters?
I fear, there will a worse come in his place.

"*Fourth Cit.* Mark'd ye his words? He would not take the crown.
Therefore 'tis certain, he was not ambitious.

"*First Cit.* If it be found so, some will dear abide it.

"*Second Cit.* Poor soul, his eyes are red as fire with weeping.

"*Third Cit.* There's not a nobler man in Rome than Antony.

"*Fourth Cit.* Now mark him; he begins again to speak.

"*Ant.* But yesterday, the word of Cæsar might
Have stood against the world; now, lies he there,
And none so poor to do him reverence.
O masters! If I were dispos'd to stir
Your hearts and minds to mutiny and rage,
I should do Brutus wrong, and Cassius wrong,
Who, you all know, are honorable men.
I will not do them wrong; I rather choose
To wrong the dead, to wrong myself, and you,
Than I will wrong such honorable men," etc.

The peculiarity of this address is that the desired conclusion and action were not affirmed at all, while in most instances in which this method is employed the mind of the hearer is prepared for the announcement of the conclusion, as was done by Mark Antony, and then after the conclusion is already fairly well formed in the minds of the hearers, it is affirmed in unequivocal terms by the speaker.

It is an interesting study for any student of oratory to read the world's masterpieces of oratory and to see how

frequently the methods discussed above are used in the orations. It would not be profitable to study these same orations in an attempt to discover illustrations of pure syllogistic forms of reasoning. An address which is coldly logical may meet the approval of those who take the time and the trouble to study it, but for oral presentation, suggestion is more powerful than reasoning. The methods discussed above are among the most effective possible methods of inducing the highest state of suggestibility and hence of securing the maximum effect in moulding thought and in securing action on the part of the audience.

Psychology of the Crowd and of the Audience

CHAPTER XII.

Psychology of the Crowd and of the Audience.

WHAT IS A CROWD?

A thousand individuals may be seen on the street daily in any city. They have come together by chance. Each has his special reason for being there at the time, but he is fully aware of the fact that the purpose which is in his mind is not common to all the others on the street. He feels no special community of purpose or interest with the others. Each individual is but one in the heterogeneous group. The purpose which animates each is unknown to the others and the action of each is largely independent of that of the others. Such a chance collection of individuals may popularly be called a crowd, but in psychology such a loose use of the term would not be justified, unless we should add a modifying adjective and call it a *heterogeneous* crowd.

The same thousand individuals may be turned suddenly into a unified group by any event which might occupy the attention of all and unify their purposes in such a way that the unity of experience and purpose would be recognized by all the members composing the group. Such a group would be a crowd in the psychological sense; to distinguish it from the heterogeneous crowd it is called a *homogeneous* crowd. Thus a thousand men in line, each anxious to secure his

deposits before the bank is closed because of the "run," would compose a homogeneous crowd. So would a thousand women thronging a bargain counter. The attendance at a foot-ball game is properly spoken of as a crowd—rather as two crowds.

In many cases it might be a question of debate as to whether a particular collection of individuals composed a homogeneous or a heterogeneous crowd. A thousand individuals meeting most casually upon the street do have some experiences in common. They are all in the rain or sunshine, on a bad street or a good one, etc. There is more or less consciousness on the part of each as to these common experiences, and although there is no common purpose animating all, yet the purposes of the pedestrians on a business street may have something in common with, yet also differing from, those of the strollers on the boulevard. Likewise the most extreme homogeneous crowd has certain elements of heterogeneity. The howling mob at a foot-ball game contains many persons who are aware of intensely personal experiences during the game and who are also aware of certain differences in the animating purpose of the hour. The differentiating characteristics of a crowd which is here being emphasized is common to a greater or less extent to all groups of people. When the community of experience and the awareness of this community is pronounced, we have a homogeneous crowd, and when it is not pronounced we have a heterogeneous crowd, which perhaps might better be called a throng. In later discussions the word crowd will be used only for homogeneous crowds as here defined.

A CROWD DEMANDS A LEADER.

It is impossible for a crowd to exist without a leader. Such a condition would scarcely last for any great length of time. A crowd demands a leader and usually selects one from its own number. A football crowd seems to be without a leader. Here the experiences of all are so similar and the purpose of all to see their own team win a victory is such a well-established fact that it does not require a leader to call attention to the common experiences and the common purposes. Even in a foot-ball crowd a leader is usually demanded to direct the cheering and rooting of the crowd.

In many instances the leader assembles and leads the crowd and without his leadership it soon disappears. In other instances the leader but holds before the crowd their common interests and purposes, which become so clear in the mind of the crowd that with the removal of one leader, another is immediately demanded and found. Peter the Hermit and Walter the Penniless and others were successful leaders of the crowd which is called the crusade, but when the idea which animated the multitude became well established, different leaders could readily be found who might manage the crowd.

CHARACTERISTICS OF A CROWD.

The crowd is like primitive man in its thinking and acting. Reason does not enter in to restrain action, to criticise suggested ideas or to hinder self-surrender to absorbing emotions. It may be truly said that a crowd never reasons and that it is

never critical. A crowd composed of intelligent citizens will accept as truth the most absurd utterances and applaud proposed plans which individually each man might scorn in derision. As individuals we inhibit more actions than we perform. A feeling of responsibility and propriety restrains us in a way that is absent to our primitive ancestors as well as to the crowd. Whatever is done by other members of the crowd is proper; also, because of the many involved, the feeling of responsibility is removed for each member. The crowd, being relieved from the restraints of propriety, responsibility, and critical thinking, is in a condition to act upon every suggestion in an impulsive manner such as is impossible to the individual when acting alone. Under such conditions, instinctive and impulsive actions and imitation play the leading part, as they do with primitive mankind. There is an alacrity of response, an immediate carrying out of every suggested action, which is wholly unlike the independent action of individuals. The individual is wholly absorbed in the crowd purpose and is completely devoted to that purpose, whether it be the lynching of a negro, the adoration of a hero, the winning of the game, or the capture of the holy sepulchre.

The crowd thinks in images, and is incapable of abstract logical thought processes. The images succeed one another in the most illogical order and lead to fantastical situations and conclusions, but the fallacy of the process of thinking is never evident to the crowd. The images in the mind secure such a fascination that they are held for truth and result in the production of exalted emotions such as would normally

accompany the reality for which the image is but the symbol. Hence it follows that one of the chief characteristics of every crowd is this prominence of emotions due to the fact that it thinks in a form of images which of necessity results in emotions. As morality and religion find utterance largely in feeling, it is not strange that crowds are frequently highly moral or religious. Even in a lynching party each individual may feel it to be his duty to kill the victim and in the act he may feel that he is performing a high moral duty. The great revivals in religion are not infrequently propagated by the crowd, and the results secured could be had in no other way.

The experience and purpose of the crowd is so contagious that in many instances it seems to be as irresistible as a maelstrom and sweeps every one that comes into contact with it into its fold. There are many well-authenticated instances of such contagious influence of the crowd. Sidis, in his "The Psychology of Suggestion," cites the following taken from the accounts of the riots of the military colonists in Russia:

"While Sokolov was fighting hard for his life, I saw a corporal lying on the piazza and crying bitterly. On my question, 'Why do you cry?' he pointed in the direction of the mob and exclaimed, 'Oh, they do not kill a commander, but a father!' I told him that instead of it, he should rather go to Sokolov's aid. He rose at once and ran to the help of his commander. A little later, when I came with a few soldiers to Sokolov's help, I found the same corporal striking Sokolov with a club. 'Wretch, what are you doing? Have you not told me that he was to you like a father?' To which he

answered, 'It is such a time, your honor; all the people strike him; why should I keep quiet?'"

If it were desirable to express in a word the peculiar characteristic of a crowd it might be done by saying that it was a group of individuals in a heightened state of SUGGESTIBILITY. This one characteristic will be found to be involved in all the characteristics as given above and is a short summary of them. As stated in a preceding chapter of this work, hypnotism is a form of suggestion, but is a form that has probably never been exercised over an entire crowd, although the form of suggestion actually employed has resembled hypnotism in its effectiveness. An individual in the hypnotic condition is in the highest possible degree of suggestibility, and the same individual as a member of a homogenous crowd is perhaps in the second highest possible degree of suggestibility. As stated in the preceding chapter, an idea is said to be suggested when it has two characteristics, (1) it must be presented by some external stimulus, and (2) it must lead to conviction or action without the ordinary process of criticism and deliberation. In a crowd the leader presents the idea (first characteristic of suggestion) and every member of the crowd seems to re-inforce it. If the speaker has presented an emotional idea, the faces and attitudes of all the hearers take up the emotion and cause it to reverberate till its force is multiplied many fold. If the speaker has presented an idea in the form of a mental image, and I am a member of the crowd, the idea then seems to be presented by each individual, for I feel that each of them is thinking the thought and seeing the pic-

ture just as the speaker presented it, and hence it is in a sense presented to me by all of those present. Since the idea as presented is assumed by me to be accepted by all present, it would seem absurd for me to question it. (Hence second characteristic of suggestion.)

ADVANTAGES OF CHANGING AN AUDIENCE INTO A CROWD.

Every audience is either a heterogeneous or homogeneous crowd. It is never completely heterogeneous, and the highest degree of homogeneity of a crowd is secured only under the influence of a spokesman, and, hence, when it is an audience. The orator's influence is in direct proportion to the homogeneity of the audience. The orator who is able to weld his audience into a homogeneous crowd has already won his hardest fight. *The difficult task is not to convince and sway the crowd, but to create it.* As a crowd exists only when there is a felt community of experience and purpose, the orator before his audience may assume a certain degree of uniformity of experience, but he must state their problems, aspirations, and purposes in such a manner that each will feel that that which is said appeals to all in the same way and that it is but the expression of the purpose and ideas of each. Thus I as a member of a crowd not only feel that the speaker is presenting my purpose correctly, but in addition to that I feel that each member of the audience is having an experience practically identical with mine. It is this feeling of identity of thought in the mind of each present that constitutes the crowd. Bryan might convince me of the justice of the silver standard. He might convince me and every other

person in the audience. If each of us thought that he were the only individual convinced, the effect would not be comparable to the actual effect when he not only convinces each, but also causes each to feel that all the others are convinced too. If I am convinced, and if I feel that all the others are similarly convinced, the effect is increased many fold. Furthermore, I am more easily convinced and moved if I believe the other members of the audience are being convinced and moved. I may be devoted to a hero, although my enthusiasm is shared by none. In such a case my devotion could not be so great as it would be if I felt that the devotion were universal. It is possible to worship alone, but in the history of the world people have everywhere felt the need of kindred spirits and have assembled themselves together to increase the fervor of devotion and worship.

METHODS OF CHANGING AN AUDIENCE INTO A CROWD.

There are certain well-established methods of securing homogeneity in a group of individuals. One of the most helpful methods is to get the audience to sit close together. It is easy to speak to a packed house, but it would take a Demosthenes to make an impression when separated from his audience by a yawning abyss of empty seats. Five hundred people scattered over an auditorium which seats three thousand can scarcely be welded into a homogeneous audience, while the same individuals crowded into a room which is intended but for four hundred are easily changed into a psychological crowd. This fact forces itself on all public speak-

ers and leads them to attempt to have only certain groups of seats occupied and preferably the front ones in order that the vacant ones may not form a barrier between the speaker and the hearers. The touching of elbows adds to the consciousness of the presence of others in a way that cannot be secured in any other way. One student of crowds states that it would be impossible to have a crowd of angels because they could not feel the bodily presence of others. This author regards actual bodily contact as one of the most potent elements in propagating the crowd spirit.

A second method for organizing a homogeneous crowd is that of the ritual. Here all the members perform the same acts, all rise and sit together, all read or recite the same formulæ, etc. This identity in act and in expression of thought serves to impress upon each a consciousness of the unity of the group and is a method employed from primeval times. The singing is frequently an important part of the ritual, and is the particular form most employed in America. Perhaps our most frequent example of the ideal psychological or homogeneous crowd is found in "revivals," and a revival meeting without much singing would be a novelty. Many of our most effective "revivalists" have a knack of making all take part in the singing. "Let everybody join heartily in the singing" is a stock expression with such leaders. I personally saw one of America's greatest evangelists throw a hymnbook at one man who did not join in the singing, but who merely desired to be an outsider and to observe what was going on. The hymns sung are not directly a form of worship at all. The sentiment expressed is of minor sig-

nificance, if only the rhythm is pronounced and has a "swing" to it that absorbs the attention and welds all who sing into a homogeneous group.

A third method of creating a crowd is to get all the audience to cheer during the first part of the performance. One of the usual methods of securing such cheering is to have the speaker introduced in such a way that he will be applauded as he steps forth to speak. Another favorite method is to begin by telling a funny story. It does not seem to matter what sort of story it is just so it "brings down the house." Another method and one more frequently employed in operas than on the lecture platform is to have the performer enter in a more or less formal and impressive manner just as he is to begin his performance. Under such conditions the applause seems to be greater than when the performer has been visible for some length of time before he is presented to the audience. The applause is similar in effect to that arising under ritual methods, but perhaps more effective, inasmuch as the applause seems to be more of a spontaneous expression. Furthermore, the unity of a crowd consists more in identity of feeling than of ideas, and hence the applause, which expresses feeling, is more effective in giving a consciousness of crowd-unity than is the ritual which expresses rather the unity of ideas.

A fourth method of welding heterogeneous individuals into a homogeneous audience is by the presentation of common ideas. Such ideas should be saturated with feeling and must be recognized as universal ideas which will impress all the individuals in the same way. Among such ideas which are

frequently used might be mentioned the following: Freedom, liberty, equality, honest labor, character, culture, manhood, chivalry, bravery, industry, liberality, brotherhood of man, Christianity, salvation; also such personages as Moses, Christ, Paul, Washington, Lincoln, etc. Such ideas act as a shibboleth and add a feeling of unity of thought. Those ideas are not abstractions, but are ideas closely connected with historical events or with our personal experiences, and hence are valuable in developing the crowd consciousness.

METHODS OF SWAYING A CROWD.

The great orator seems to know instinctively how to deal with the crowd. The successful presentation of a subject to an individual is not at all the same as the successful presentation of the same subject to the crowd. As was indicated above, the mental processes of the crowd are similar to those of primitive man and hence the most effective appeal must be made to the mind of the crowd as it actually is, and not as we might assume it to be, from knowing the individuals composing it. The crowd, like primitive man, thinks in mental images rather than in logical processes. The skillful orator awakens these images one after another or holds a single picture so vividly before the crowd that the results, image or images, become as realities and lead to the most extreme measures to carry out that which is merely imagined. A leader of a crowd must have a vivid imagination and must be able to awaken such images in the minds of his hearers. Impassioned form of speech is more likely to find

expression in bold flights of imagery and hence the addresses of leaders of crowds are likely to manifest this peculiarity.

The orator who has welded his audience into a homogeneous crowd should never be guilty of attempting to reason with them, for, by the very process of forming them into such a crowd, he has deprived them of the power of critical thinking. He should affirm reasonable things and affirm conclusions which he has come to by processes of reasoning, but he should not presume to conduct the crowd through such a process.

Not only do crowds think in images, but a very striking characteristic is the part played by the emotions in awakening the images and the peculiar emotional tone which accompanies them. This might have been anticipated from a study of emotions. Human emotions are always awakened by strong forms of imagery. Logical processes of thought are practically devoid of emotional coloring, while the conclusions reached by primitive man and by crowds are the results of feeling rather than of reasoning. No orator can sway the individuals of a crowd who does not succeed in stirring their emotions; hence successful leaders of crowds are persons of highly emotional natures, who surpass others in moving the feelings of their hearers.

Memory

CHAPTER XIII.

Memory.

DIFFERENT USAGES OF THE TERM MEMORY.

Discussions of memory have always been regarded as interesting and profitable. Writers on oratory, education and psychology have all given us their observations on the subject. The term memory has, however, been used so diversely that it is advantageous to begin a presentation of the subject by a statement of the exact sense in which the term is to be employed. The following are some of the ways in which the term may be used: (1) The mere presence of a mental image of any sort. Thus I would be said to remember my grandmother inasmuch as I retain a distinct image of her face. (2) The feeling of familiarity which attaches to certain things even though we are not able to recall the time at which we had seen them before. Thus I would be said to remember a person even though unable to place him, if I had a feeling of having seen him some place before. (3) The process of acquisition, retention and recall. (4) The technical sense, "knowledge of an event or fact of which meantime we have not been thinking, with the additional consciousness that we have thought or experienced it before." In the present discussion no attempt will be made consistently to present memory in the narrower technical sense, but when a wider use is given to the term, the context will make clear just what is intended.

REMARKABLE MEMORIES.

One of the most surprising things about memory is found in personal differences. Most of us have what seem to be very poor memories when we compare them to those of some of our friends. Most of us know persons with what seem to us to be phenomenal memories for certain things. I have a friend whose memory is of such a peculiar type that I never cease to wonder at it. Recently I introduced him to a gentleman of whom he had never previously heard. The name was not peculiar, although rather uncommon. After the gentleman had retired, the friend asked me whether the gentleman had a daughter who was married to a Mr E——, of A——, some months previous. Such was the case, and the friend drew the conclusion because he had noticed in the Chicago marriage licenses the name of that couple some months previous. My friend glances hastily at the list of marriage licenses almost daily, and seems to be able to recall the names at a later time with considerable accuracy and completeness. On one occasion I remarked to this friend that I was going to Chautauqua, N. Y. He then advised me as to which road would be the most convenient, the exact minute at which trains left Chicago, the time at which I should have to leave the trains on this road and get the trains at a point of transfer in a distant State. He had never made the trip, and had no special interest in the road, but such things as time tables have a fascination for him, and when he has read them he remembers much of the information secured.

Another acquaintance can look at a freight train of forty cars as it moves rapidly by. When it is past he is able to

give in order the number of each of the cars and to tell the railroad to which it belongs. If requested, he could in a few seconds secure without a pencil the sum of the numbers, the sum of the odd numbers, the sum of the even numbers, etc. He can hold in his mind a series of numbers so great that to most of us such ability is incomprehensible.

A chance acquaintance assured me that he had never forgotten the name and face of any person whom he had ever met. I have no evidence of the accuracy of this statement, although it was certainly given in good faith. Even though this acquaintance might possibly recall all persons to whom he had ever been introduced, the feat would not equal that which is asserted on good authority of many others. Mithridates, king of Pontus, is said to have known by name his 80,000 soldiers. Scipio is said to have known by name all the inhabitants of Rome. Themistocles is supposed to have been able to call by name the 20,000 inhabitants of Athens.

The power to retain what one hears or sees is possessed in remarkable degree by certain persons, and in some cases even by those of the lower ranks of civilization. Rev. Mr. Moffat, a missionary to Africa, after preaching a long sermon to a large number of savages witnessed a remarkable feat of memory which he describes in this way: "My attention was attracted by a simple-looking young man, at a short distance. The person referred to was holding forth with great animation to a number of people, who were all attention. On approaching I found, to my surprise, that he was preaching my sermon over again with uncommon precision and with great solemnity, imitating as nearly as he

could the gestures of the original. A greater contrast could hardly be conceived than the fantastic figure and the solemnity of his language, his subject being "Eternity,"—while he evidently felt what he spoke. Not wishing to disturb him, I allowed him to finish the recital, and, seeing him soon after, told him he could do what I was sure I could not, that was, preach again the same sermon *verbatim*. He did not appear vain of his superior memory."

The great classical scholar, Scaliger, possessed a most remarkable memory in many fields of study. There seems to be evidence for the statements that he committed Homer in twenty-one days, the remaining Greek poets inside of four months, and all the other Greek writers in less than two years.

Seneca is regarded as entirely trustworthy even when he tells us that he could repeat in order two thousand names which were merely read to him, and when he claims to have repeated in reverse order two hundred unconnected verses which were pronounced to him a single time by a group of pupils.

Daniel McCartney, of Salem, Columbiana County, Ohio, claimed that from his ninth year he was possessed of a remarkable memory. He made the assertion that for the preceding period of forty-two years he could tell for any date the day of the week, the condition of the weather and where he had been. He was investigated by W. D. Henkle, State Commissioner of Public Schools of Ohio. In the opinion of his investigator, the claim was in the main justified. The full description of the investigation is to be found in the

"Journal of Speculative Philosophy," edited by William T. Harris. Mr. Henkle suggested dates, then recorded the answers on the three points under investigation. The record also included the length of time intervening between the reading of the data and the giving of the answer by Mr. McCartney. The method and results are so interesting that two questions and answers will be chosen at random from the full report and presented.

"Q. April 12, 1861?

"A. (2 seconds.) Friday. It was pleasant, but cloudy. I went from Wilton to my brother's, ten miles away.

"Q. September 2, 1864?

"A. (10 seconds.) Friday. It was very pleasant and warm. The day after, there was a Sunday School celebration in the grove."

Think of remembering the day of the week and the kind of weather for each date for over 15,000 days! The ability does not seem to have been especially sought after, although such facts did, of course, have a great interest to Mr. McCartney. It might be added that Mr. McCartney was also a mathematical prodigy. For instance, when asked the product of 123 and 456, he gave the correct answer of 56,088 in thirty five seconds.

Memories differ not only as to the amount of things which can be retained, but also in the quality of the things retained. Some possess desultory memories and retain such comparatively useless material as dates, times of trains, etc., etc. Others have logical memories, and though useless facts are not retained, things which are worked up into a system are

well retained. Again, there are differences depending on the quality of mental imagery. An "eye-minded" person is likely to remember what he sees. An "ear-minded" one retains what he hears, even though his memory be poor for what he sees. The eye-minded one retains faces and the ear-minded one voices. The former can remember a picture and the latter a symphony. Others have memories especially strong for movements, odors, tastes, heat, cold, the touch of things, etc. The differences are very pronounced. There are but few persons who find that they can well retain objects presented to more than two or three of the different senses.

FORGETTING—RATE OF THE FADING MEMORY.

Whether we have good or poor memories, we all find that the experiences of yesterday are less distinct in our minds than those of to-day. The events of last year which are remembered are but few in number. In comparison with the last year, all previous years are relatively barren, both as to the number and the vividness of memories which we are able to call up. Time is a potent factor in causing all memories to fade. Just how potent a factor it is was not fully appreciated until Professor Ebbinghaus, of Germany, completed his famous experiments on the subject. Since he first announced to the world his results, others have verified the results, and to-day we have rather definite knowledge of the rapidity of the fading of memory with time. My memory of any experience is at its height a few seconds after the completion of the experience. According to Professor

Ebbinghaus's figures, after twenty minutes I shall forget 40% of my present experience; after thirty minutes, 50% of it; after two days, 72% of it; after thirty days, 80% of it. The figures are not to be taken as absolute for all sorts of material and for all persons, but the results are to be taken as absolute in so far as they express the fact of an initial rapid fading, followed by a progressively slower fading, of memory. For all persons and for all their experiences, forgetting is rapid during the first minutes and hours, but after the first day relatively little is forgotten on each succeeding day. That which is remembered for a month has an excellent chance to be remembered a year. More is forgotten during the first hour, or half hour, than during the succeeding thirty days.

THE ORDER OF FORGETTING.

Certain things which have been thoroughly learned are more quickly forgotten than other things which have not been so well learned. This is true even in places where it would not be expected. The names of our best friends are forgotten sooner than certain exclamations which we use but infrequently. With extreme old age forgetfulness increases rapidly and in a uniform order. This same order is discoverable in certain forms of insanity and other afflictions which injure the mind. The order of forgetting is so uniform that in all such cases we expect to see the proper nouns forgotten first. Then follows the common nouns which refer to the concrete objects which we see and handle daily. The abstract nouns are retained much longer than those which

refer to persons, places, and concrete things. After the nouns, the order of forgetting is adjectives, verbs, conjunctions, prepositions and interjections. It is, of course, not to be supposed that all nouns will be forgotten before any of the interjections. The order merely indicates the sequence of the greatest amount of forgetfulness. The memory for nouns may be very defective, even before any weakness is noticeable for other words. A man with a weakened memory may not be able to recall the name of a knife, and yet be able to make his wants known by calling it "the thing to cut with." Many of us who are afflicted with poor memories recognize the fact that we are most frequently embarrassed by the loss of a noun, and under such circumstances interjections arise in our minds in great profusion. A further complication of this process of forgetting arises from the fact that some persons forget most rapidly those things which are seen, others those which are heard, etc. In certain instances this forgetting the material of a particular sense order becomes abnormally great, and the results are most disastrous. There are fully-authenticated cases of adults in normal health who have forgotten practically all their visual memories. Some of these cases have been so extreme that the subjects were unable even to recognize by sight the members of their own households, or even to recognize their own countenances when seen in a mirror. This extreme form of loss of memory may be permanent, but in some cases is but transient. In either case, those thus afflicted are compelled to educate themselves to depend on the forms of memories which are still intact.

MEMORY DISTORTS, BLURS.

We are all too much inclined to think of ideas as things, as realities which are durable and which may be stored away in memory something like wheat stored in a bin, or like a light which grows dimmer and dimmer with time, but which is not extinguished and which may be revived. Such conceptions are totally false, and lead to an erroneous conception of memory. Ideas are not things, but are mental acts. They are not stored away in memory to be recalled at a later time. A remembered idea is in every case a new creation, and it brings with it a feeling of familiarity which serves to identify it with the previous experience of which it is a counterpart. The mind having created an idea once, is enabled to perform the same process more readily in the future, and at the same time to become aware of the identity in the two processes. If remembered ideas were like wheat in the bin or like a light which may be burning low, then upon its recall such an idea would inevitably be just as it was in the original, with the possible exception that it might be less distinct. If ideas are new creations, then there is no guarantee that the new creation will be identical with the former experience to which we associate it. Under such a conception we would expect to find that our remembered ideas were not merely less distinct than the originals, but that they were in other respects not identical with the originals. Such a supposition is sustained by the facts. Our memories are proverbially fallacious. A remembered experience may be distorted beyond recognition, and yet, to the person remembering it, it may seem true

to the original. There are whole classes of experiences that are regularly distorted. Thus, loud sounds seem in memory less loud than they actually were. Dull lights are remembered as being brighter than they really were, while bright lights are in memory underestimated in their brilliancy. In the case of these rather indifferent experiences, we seem inclined to remember everything as nearer the usual than it actually was. Thus, in memory a very heavy weight is thought of as less heavy; a very low tone as less low; an unusually hot day as less hot, etc. In all such instances memory serves to level up or down towards the average. When, on the other hand, a strong emotional element enters in, the reverse process makes itself felt. That which frightened me must in memory seem to be an adequate cause for such a fright. As the real cause seems in memory to be less and less, I am inclined unconsciously to add new features which make the experience seem reasonable. Our understanding plays a large part in our memories, and when reason says that an event must certainly have been a particular way, memory readily adds her concurrent voice. This process is usually a very slow one, and the exaggeration may increase from day to day, until the final outcome bears nothing more than a vestige of resemblance to the original experience. This process is facilitated by the presence of a vivid imagination, poor retention of details, and excitement connected with the experience. Personal interests or wishes are also factors of no inconsiderable importance.

MEMORY ILLUSIONS.

An interesting demonstration of the blurring and distorting of memory is found in the narration of childhood experiences by adults at a family reunion. The memories of a common experience are thus seen to be different not only in completeness of detail, but also as to the nature of the experience. In many instances the distortions are so great that there is no possibility of reconciling the discrepant testimonies. Judges and historians are painfully aware of the inaccuracy that is to be expected even in the testimony of honest and well-intending witnesses. Perfect agreement is usually interpreted not as a proof of accuracy, but rather as indicative of collusion. Perfectly honest testimony is occasionally false, even in such vital points that the illusion seems impossible. Annually I make a collection from my students of illusions of memory, and they are more frequent than one would naturally suppose. At the holiday family reunion, one of my students was narrating how he and his younger brother tried years before to kill a turkey, and how the younger brother let the axe slip in such a way that it resulted in the loss of the tip of the narrator's finger. The younger brother, who was present at the reunion, asserted that the narrator himself had let the axe slip, and was able to produce the scarred finger in evidence of his contention. The elder brother is convinced that it must not have been his own finger that was cut, even though his memory is clear as to just how it happened, and how the wounded finger hurt. Another student, when a child, was taught to describe the great Chicago fire. As she described the fire, her imagination was

active, and she seemed to see the fire, the charred embers, etc. She also saw in imagination how she walked through the deserted streets, holding the hands of her parents. She soon came to believe that she was present at the fire, even though it occurred years before her birth. She is still unable to reconcile herself to the facts, but insists that this event seems as real to her as any memory from her actual experience. Such illusions of memory occur among healthy and intelligent persons with such frequency that there is no trouble in collecting numerous instances of cases similar to the two here mentioned.

Designing lawyers may secure testimony from persons with weak memories by skillfully playing upon their imagination. If the lawyer narrates a possible situation in the presence of the witness for a few times, finally the witness may actually confuse the imagined scene with the actuality in such a way that he will swear that he was present and saw that which as a matter of fact never happened. That which we have vividly imagined several times may easily become confused with that which we have actually experienced. "If my memory does not serve me falsely," is a confession that expresses a great truth as to the fallibility of all human testimony.

A WEIRD EXPERIENCE EXPLAINED.

There is a very peculiar experience which probably comes to about one-half of all the adults, but is looked upon with suspicion by the other half, who have never had any such experience. As I enter a building for the first time, I may

have a feeling that I have been there before under identical circumstances. All the details of the building have a peculiarly familiar appearance, even though I know that I never have been near the spot before. I may be entering a woods and be impressed with the familiarity of the scene, even though it be the first time I had ever been near the woods. I may be in conversation with a stranger and seem to know in advance just what he is going to say, for it all seems identical with some previous unlocated experience. This experience has led different persons to very peculiar hypotheses by way of explanation. Several intelligent persons in America have been so impressed with the feeling of familiarity in connection with the wild woods that they have come to the conclusion that they must have dwelt in those woods, and if not in this life, then in a previous existence, in which they were Indians.

It is likely that Wordsworth was attempting to explain this peculiar experience when he wrote his "Intimations of Immortality." The proper explanation certainly gives no necessary proof of the transmigration of souls, but is more simply explained as an illusion of memory in which the feeling of familiarity is misapplied.

The next chapter of this series will deal solely with the answering of the following two questions: To what extent and by what methods may the memory be improved? What is the most economical method of committing a part, whether it be poetry or prose, long or short, or even such stupid material as names, dates and numbers?

Practical Applications of the Psychology of Memory.

CHAPTER XIV.

Practical Applications of the Psychology of Memory.

In the present chapter we shall deal specifically with two problems connected with the psychology of memory, i.e., (1) methods of improving memory, (2) methods of committing a part, and incidentally methods of impressing the memory of others.

TO WHAT EXTENT MAY MEMORY BE EDUCATED?

It was formerly assumed that none of our mental faculties was so subject to training as memory. Much memoriter work was given in school, and in every way care was taken to develop this important mental factor. Of recent years there has been a revolt against what was certainly an extreme emphasis. To-day we have reached the other extreme. Our schools have abandoned all memoriter work, and the youth of our land are not acquiring the habit of committing. They deem the task as out of date and worthless. Our leading educators and psychologists are quoted as authority as to the impossibility of memory training. Of such authority William James, of Harvard, is most often quoted. The following is the passage cited from his "Principles of Psychology," Volume I, page 663: "No amount of culture would seem capable of modifying a man's GENERAL retentiveness. This

is a psychological quality, given once for all with his organization, and which he can never hope to change. It differs no doubt in disease and health; and it is a fact of observation that it is better in fresh and vigorous hours than when we are fagged or ill. We may say, then, that a man's tenacity will fluctuate somewhat with his hygiene, and that whatever is good for his tone of health will also be good for his memory. We may even say that whatever amount of intellectual exercise is bracing to the general tone and nutrition of the brain will also be profitable to the general retentiveness. But more than this we cannot say, and this, it is obvious, is far less than most people believe."

In his later writings appears the following oft-quoted passage: "The popular idea that 'the memory,' in the sense of a general elementary faculty, can be improved by training is a great mistake."

These and similar statements are supposed to teach specifically the impossibility of any successful memory training. Such is, however, not the case. We may for our present convenience analyze any act of memory into three factors, i. e., acquisition, retention and recall. Professor James was speaking of but one of these three processes. Even though one's native retentiveness may not be improved, beneficial results may be secured by the training of the other two factors. If it be granted that nothing in addition to hygienic regulations may effect native retentiveness, still acquisition and recall are so under the influence of training that methods of improving these are of the greatest significance.

GENERAL METHOD OF IMPROVING MEMORY—SYSTEM.

Perhaps the most potent factor in strengthening the memory is found in what we may speak of as SYSTEM. By this is meant the power to see the relations existing between the different parts of that which is to be committed and also to connect it in some way with those experiences of life which are vital. That which is to be committed must make sense and must have value. Such an analysis can be made only after training, and is an ideal which we but approximate. The astounding memories of Spencer and Darwin can be accounted for in this way. The new data filled a place in their logical systems, and had a distinct value. Things thus grasped could be remembered even though the native retentiveness be poor. If a new fact is seen to be similar to something already known, if the cause of the fact and its consequences are seen, it ordinarily takes no further effort to commit it to memory. When it is thus connected with its similars, with its cause and its effect, it does not stand out as a thing apart, but is so unified with our previous knowledge that we cannot forget it till the other knowledge with which it is associated is also forgotten. The difficult thing is to see these relationships and to see them rapidly. A memory which is poor in retentiveness is compelled to cultivate this factor of system to an extent which would seem impossible to those having strong native retentiveness. Facts which are worked into a system are not only thereby committed, but at a later time they are easily recalled.

MEMORY IMPROVED BY THE EXTENT AND INTENSITY OF INTEREST.

In addition to system, a second factor in improving the memory should be mentioned, which is indeed closely connected with system, i. e., that of INTEREST. That which interests me has a good chance of holding its place in my memory. People differ in memory in part because they differ in extent and intensity of interests. I am not so much interested in the names of my acquaintances as are those who remember names particularly well. Mr. McCartney, as described in the previous chapter, took a great interest in observing the day of the week on which each calendar day occurred. It had always appealed to him as a matter of supreme importance. He thought of it frequently, and took delight in the memory. To me it would seem stale and unprofitable. The superiority of his memory over mine is due to the intensity of his interest in such things, as well as to the power of his native retentiveness.

If I keep myself in good physical condition, if I form systematic habits of thought, and if I take interest in things which should be remembered so that I fully abandon myself to them, then I have done about all I can to improve my memory.

MNEMONIC DEVICES.

There are numerous so-called teachers of memory who have devices to sell to credulous victims who are afflicted with poor memories. Such devices are usually comparatively worthless, and are entirely worthless, except in so far as they assist one

in arranging facts systematically and in taking interest in them. Such methods can in no way effect the general power of retentiveness though they may be of some little value in injecting system into facts which would otherwise be chaotic. Such devices are usually mechanical and possess value mainly in remembering disconnected facts, and even then the energy necessary to apply the scheme to the data is often greater than would be necessary to commit the same facts in other and less elaborate ways.

MOST ECONOMICAL METHOD OF COMMITTING.

For a general improvement of memory psychology has relatively little to offer, but for increasing efficiency in memorizing, it has most fruitful suggestions. When confronted with the task of committing we may turn with confidence to psychology. To be specific, let us imagine that I have forty lines of poetry to commit, and that my memory is not especially good. In such an emergency how can I accomplish my purpose with the least effort, and yet with completeness? From the foregoing discussion of the general improvement of memory, we should conclude that I should begin the task when I am feeling well and fresh. In the second place, I should attempt to comprehend the full meaning of the passage as a whole and the relations of part to part. The logical connections should all come out clearly in mind as far as they are discoverable. In the third place, I should give myself up to the appreciation of the poem with perfect abandon.

USE OF PREVAILING FORM OF IMAGERY.

These methods are by no means unimportant, but they are not all, and there are other factors of prime importance which are too often neglected. Of equal importance with these three is a fourth factor which is frequently disregarded, i. e., the employment of my strongest form of mental imagery.

If my *visual* imagery is strong, I should try to form a distinct visual image of everything which is described in the poem. In many instances I could with advantage even imagine in visual forms things which would not naturally be thought of in such form. Perhaps my special imagery is strong for printed words, and for their position on the page. In such instances effort might be made to form a distinct picture of the pages on which the poem appeared and then all later recitals might be very much like an actual reading of the poem from these clearly-imaged pages. The image of the pages would probably fade away as soon as the poem was well learned, but there is nothing lost by the process if my mind is capable of forming images of a page with ease.

If my prevailing form of imagery is not visual, but is *auditory,* then I should use an entirely different method of committing. In this case I should, if possible, have the poem read to me, or I should read it aloud and it should be committed as a series of sounds, just as if it had no visual form at all. It might be an unendurable burden for me to commit the poem from seeing the printed page while it might be committed with comparative ease if studied aloud. While in school it is frequently inconvenient to study aloud, and hence we form the habit of committing the wrong way and never

correct the method at a later time when it would inconvenience no one if we should study aloud everything which we are to commit.

If my prevailing form of imagery is neither visual nor auditory, but is of *movements,* then I must adapt my method to my special faculty. It might be possible that the writing of what is to be committed would be a most helpful plan. Or it is probable that the muscular effort connected with the pronunciation of the words is the most effective factor in assisting me to commit. In such a case I should read aloud that which is to be committed and the reading of it myself would be more beneficial than having it read to me. The movements of writing and speaking should be supplemented by actions of gesture as they come natural in the ordinary delivery. All movement connected with that which is being described should be felt as completely as possible, and all movements involved in learning and delivering should be given full sway.

Many forms of bodily movements assist the mind in committing and recalling in a most remarkable manner. If a speaker forgets his part, it is fatal to stand still and do nothing. Such bodily inactivity has its effect upon the mind, and makes the recall of the part doubly difficult. The writer never will forget the test of this principle which he experienced some years ago. It fell to his lot to preside over a large audience and to introduce formally a speaker of great fame. Just as he reached the sentence in which he was to announce the name of the bishop, the speaker suddenly discovered that he had forgotten the name of the distin-

guished guest. If he had stopped and tried to recall it, the confusion would have overcome all attempts to recall. Instead of allowing this to happen, the speaker continued uttering sentences, more or less appropriate, until the name was recalled and the speech completed, much to the relief of the speaker, and apparently to the entire satisfaction of the audience. The physical effort of enunciation and the attendant necessary mental activity were the factors needed to stimulate the mind and to secure the recall. Every speaker who does not use a manuscript is forced to make it a rule to *do something* as soon as a part is forgotten. This something may be the pronunciation for the second time of the last sentence remembered, or the *ex tempore* insertion of an irrelevant sentence; it may be the pouring of a glass of water, or the walking to the front of the platform. It is not essential what it is, but the mental machinery is best stimulated by activity, and when the mind becomes a blank and the part is forgotten, activity must be initiated by a process which is fully under the control of the will. This principle is especially important to motor-minded persons, but is valuable to all.

That which is grasped in terms of my prevailing form of imagery makes the greatest impression on me, has the most meaning, is most easily committed and most readily recalled. Every person should discover the form of his mental imagery and take advantage of the discovery in employing the strongest side of his mind in acquiring knowledge, and especially in committing *verbatim*.

REPETITION.

The fifth element to be considered in memorizing a part is that of repetition. Probably no one ever tried to commit anything who was not forced to use this method. Relatively few, however, naturally use repetition in its most effective form. If the imagery is decidedly of one form, then the repetitions should be only in that particular form. If the imagery is general, then the repetitions should not be confined to a single form. Many persons would be assisted by the employment of different forms of repetition. Thus, I might read my forty lines of poetry to myself, then I might read them aloud, have them read to me, write them or use a combination of methods by reading aloud while attempting to visualize both the page and the scene described. Appeal would thus be made at once to the eye, ear and muscles.

COMMIT LARGE SECTIONS AT ONCE.

The chief error made in the employment of repetitions is in repeating a small passage rather than the entirety of that which is to be committed. If I am to commit my forty lines of poetry, the most economical method is to read through the forty lines in their entirety, and never learn any part of them piecemeal. It would be unwise to learn a line or a stanza at a time, but the entire forty lines should be learned at once by reading the entire passage through repeatedly until it is all perfectly learned. Almost no one adapts this method unconsciously. In fact, most persons believe it to be an impossibility to commit after this fashion. The only way

to be convinced is to make the experiment. It has been verified when tested most critically, and is the most economical form of repetition. If the forty lines are difficult, it would be wise to read them through several times, and then return to the task on the following day. Such interruptions of a day or more are advantageous in reducing the total number of repetitions necessary for committing the passage. This learning of an entire poem, oration, or other piece of literature not only shortens the effort of committing, but lengthens the time of retention and the readiness of recall, and hence is to be recommended for universal use. The only exception to be made is in the case of passages containing special and unusual difficulties of one sort or another. It is frequently wise to pause at such lines and master them word by word, if necessary. Otherwise the repetitions should follow the method which is to be pursued in delivering the passage both as to the speed of the repetitions and the method of expressing it.

INGENIOUS METHODS OF COMMITTING.

Cicero, Quintillian and many other great orators placed much importance on what we might well call *ingenious* devices for committing orations. From these ancient orators came the custom of relating the parts of an address by such expressions as "firstly," "secondly," etc. They also employed particular forms of imagery for committing their orations. One of the most common methods seems to have been the associating of parts of the oration with definite parts of a house or street. For instance, they would associate the

introduction firmly with the entrance to the house; the first main division with the room of the house which would naturally be entered first. The parts of this first division might in extreme cases be associated with the furniture of the room and the order of sequence of the furniture would determine the order in which the parts were to be recalled. The address could be divided into as many parts as practicable, and each part associated with a room of the house and in such an order that the different parts would be recalled in the proper order. This association was, of course, arbitrary, but, having once been formed, might be held well in mind and it insured the speaker from forgetting the sequence of the parts of his entire discourse. To most persons such a method seems cumbrous and much inferior to a more logical method of associating part with part. It was highly recommended by many great orators, but is certainly not a practicable device for most public speakers. It is, therefore, not recommended at the present time, and has but little more than historic interest.

Although ingenious devices are not of great value in committing material which is subject to logical analysis, such devices are a great boon in committing names, dates, English spelling and other similar material. I remember Miss Lowe by associating her name with her stature. I remember the name of Miss Hues by associating the name with the color of her cheek, etc.

Telephone numbers, house numbers and dates are often easily committed by such fanciful associations. The absurdity of the association seems but to heighten its effectiveness. I remember a certain telephone number, which is 1391, by

thinking how unfortunate it is to have such a number—13 being the proverbially unlucky number and 91 being seven times 13!

The public speaker is interested in memory in a threefold way. He wants to know how to strengthen his memory, to acquire the most economical methods of committing and recalling and also so to express himself that what he says will be remembered by his hearers. The methods of securing this third result may in every case be inferred from the methods presented above for improving the general memory and for committing a part. Such changes as are necessary to conform with this last purpose may easily be supplied by the reader, and will not be discussed at the present time.

When all is said that can be said for improving the memory and for committing a part, the fact remains that some persons have good memories and others have poor ones. No amount of training and no richness of devices will cause a person with a poor memory to have a good one. A person with an unusually strong memory needs to observe but few of the rules mentioned above, for with him the task is easy and demands but little attention. If we have weak memories, the rules here given will help us to improve them very greatly, but they will not cause us to have good memories. After science has rendered its perfect work, the memory of man will be something of a mystery, and the personal differences will still excite our wonder.

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